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A RAND NOTE

Defeated by a Maze: The Soviet Economy and
Its Defense-Industrial Sector

Lee D. Badgett

October 1988

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER N-2644-NA	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Defeated by a Maze: The Soviet Economy and Its Defense-Industrial Sector		5. TYPE OF REPORT & PERIOD COVERED interim
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Lee D. Badgett		8. CONTRACT OR GRANT NUMBER(s) MDA903-85-C-0030
9. PERFORMING ORGANIZATION NAME AND ADDRESS The RAND Corporation 1700 Main Street Santa Monica, CA 90406		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Director of Net Assessment Office of the Secretary of Defense Washington, DC 20301		12. REPORT DATE October 1988
		13. NUMBER OF PAGES 73
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) No Restrictions		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) USSR Economic Analysis Economic Models		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) See reverse side		

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Since the 1970s, the U.S. government, academia, and research organizations have been dissatisfied with attempts to model the economy of the Soviet Union and its embedded defense-industrial sector. In this Note, principles drawn from the history of economic thought are related to some of the key features of Russian and Soviet history to define and interpret the functionally distinct character of the Soviet defense sector. The author draws a number of conclusions on which to base modifications to current models of the Soviet economy: (1) Centrally administered economies differ fundamentally from market-exchange economies in where effective decisionmaking is made and, consequently, in the preferences or objectives that characterize the systems and the control mechanisms employed to realize those objectives; (2) the Soviet economy may be portrayed as dualistic; (3) the Soviet economic system has more in common with nonmarket institutions than it has with the market-exchange systems upon which Western societies are based.

*Keynote for the 1980 Analysis,
Economic models. (K.A. 1)*

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Prepared for
The Director of Net Assessment,
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Accession For	
NTIS CRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
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PREFACE

This Note is part of a larger study whose purpose is the development of several new methods and models for analyzing the Soviet economy. These models are linked more closely than existing ones to certain key characteristics of the Soviet system. In part, the study was originated in response to some of the limitations of existing approaches that were identified at a 1984 conference on models of the Soviet economy held in the Washington offices of The RAND Corporation.¹

At the conference, it was argued that Soviet economic models have been based too extensively on Western economic concepts and constructs, and that certain features of the Soviet economy have not been adequately reflected. In particular, the priority given the defense sector, its dualistic character, and the penetration by this sector into civil activities are not adequately reflected. In this Note, principles drawn from the history of economic thought are related to some of the key features of Russian and Soviet history to define and interpret the functionally distinct character of the Soviet defense sector.

This research was sponsored by the Office of Net Assessment in the Department of Defense under the auspices of RAND's National Defense Research Institute, a Federally Funded Research and Development Center supported by the Office of the Secretary of Defense. It was conducted under the project entitled *Alternative Views of the Soviet Economy and the Role of the Military-Industrial Complex*, part of RAND's International Economic Policy program. This Note should be of interest to those in the Defense and State Departments, and in the intelligence community who are concerned with the key role of the defense sector in the Soviet economy. Lee D. Badgett is Professor of Economics and Dean, College of Business and Technology, Humboldt State University, and a Consultant to The RAND Corporation.

¹Gregory G. Hildebrandt (ed.), *RAND Conference on Models of the Soviet Economy, October 11-12, 1984*, The RAND Corporation, R-3322, October 1985.

SUMMARY

For a decade or more the U.S. government, academia, and research organizations have been dissatisfied with attempts to model the economy of the Soviet Union and its embedded defense-industrial sector. Initially, criticisms were directed primarily toward the Central Intelligence Agency's estimates of the size of the Soviet defense effort and the corresponding burden upon the Soviet economy. The CIA's estimates are major influences upon our government and private perceptions of the Soviet Union and are used outside the Agency to influence, or to attempt to influence, the allocation of resources among our own government programs; therefore both the validity of the estimates and criticisms of them are proper subjects of serious attention. Several other major models of the Soviet economy exist and, although they do not share specific common purposes with the CIA model—nor among themselves—they have provided insights into the structure, operation, or future behavior of the Soviet economy.

In 1984, a RAND conference brought together experts on four of the most prominent economic models of the Soviet economy, including the CIA's. Pervading the discussion were expressions of dissatisfaction similar to those of the mid-1970s, although the criticisms differed among models. A critical theme to which each seemed subject was some degree of "mirror imaging," the representation of aspects of the Soviet economy by data, data constructs, or structural or behavioral assumptions drawn not from the Soviet context but from that of the Western economies, particularly from the experience of the United States. Such cross-national approximations are not uncommon in modeling efforts; they are particularly seductive in the case of the Soviet economy and its defense sector because of Soviet recalcitrance in providing information.

Nonetheless, the conference revealed instances of mirror imaging attributable less to Soviet recalcitrance than to a strongly embedded Western economic tradition that deemphasizes historical, institutional, and structural particularities in the application of standard analytic assumptions and methods drawn principally from Western experience.

The RAND Conference on Models of the Soviet Economy provides a general context for this Note. The models examined at that conference, like all models, inherently exaggerate. Models are both selective and simplifying in what they represent, thereby exaggerating what is portrayed in relation to what is not and masking much of the complex reality of what is portrayed. The same is true of this Note, which suggests

directions for future modeling efforts. Certain points are made and contrasts drawn in terms that can be seen as exaggerated. In addition, many of the points made and contrasts drawn are not, in themselves, original or innovative. Indeed, they appear to be both well-supported in the literature and absent from the major analytic models of the Soviet economy. This Note suggests enhancements to the "institutionless aspects of the neoclassical orthodoxy" that characterize those analytic efforts (Putterman, 1987, p. 284).

The principal conclusions drawn and recommended as modifications to contemporary modeling efforts are first and most generally that **centrally administered economies differ fundamentally from market-exchange economies in where effective decisionmaking is made and, consequently, in the preferences or objectives that characterize the systems and the control mechanisms employed to realize those objectives.** Maximization or optimal-control models of centrally administered economies must therefore specify the maximand with care. In the Soviet Union, consumption as the maximand seems inappropriate. More appropriate is a representation of a broad and complex conception of national power or security that includes—in addition to traditional military or defense activities—internal stability, the administrative interests of the leadership and bureaucracy, the international interests of an imperial power, and, ideally, the concerns of a society preoccupied with national strength.

Second, although defense-industrial interests permeate the economy and society generally and have important interactions with both, they have been the traditional recipients of leadership priorities to such an extent and for such a period that organizationally, administratively, and technologically they are functionally distinct from the general economy. Consequently, **the Soviet economy may reasonably be portrayed as dualistic**, and models of it that assume an integrated flow of resources and do not represent the distinguishing advantages of the defense-industrial sector are likely to be misspecified.

Third, the centralized political hierarchy, the combination of leadership interests and priorities, and the interests of the administrative bureaucracy established to convey, monitor, and enforce those priorities suggest that **the Soviet economic system has more in common with nonmarket institutions than it has with the market-**

exchange systems upon which Western societies are based. Accordingly, analytic gains may be made if the Soviet "economy" is viewed more as a political institution and approached through the insights of the new institutional economics, particularly public choice theory.

ACKNOWLEDGMENTS

The author wishes to thank Nathan Brooks, Gregory G. Hildebrandt, and Kent Osband of The RAND Corporation, and Richard C. Ericson of Columbia University, for valuable insights they have provided on aspects of this Note. Nathan Brooks pointed out an important omission in the original treatment of the NEP period. Kent Osband was thorough, persistent, and helpful in his reviews, particularly in pointing out an inconsistency with the work of Richard Ericson. Gregory Hildebrandt provided research material and breadth of insight.

Any remaining shortcomings whether of substance or style are the author's.

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INTRODUCTION

Writing in 1966, Robert Campbell vented his frustration after attempting to analyze the centrally administered economic system of the Soviet Union in terms of the basic analytic concepts of modern economics. These concepts had considerable success in portraying and analyzing the operation of western economies, including the economy of the United States. However, on completing his analysis of the Soviet Union, Campbell stated that he felt as if he had "been defeated by a maze" (Campbell, 1966, p. 202). It is worthwhile to quote the essential source of his frustration:

Despite differences in institutions of the two economies, the basic fact of scarcity ought to mean that much of the logic of our model of allocation and rationality ought to apply even in the Soviet economy. But despite the logical relevance of this body of thought, the institutional peculiarities of the Soviet economy make it not very operational (Campbell, 1966, p. 186).

Professor Campbell's frustration was well founded. It remains relevant to the dissatisfaction felt by some regarding many contemporary analyses of the Soviet economy, particularly those concerned with the interaction between the general economy and the embedded defense-industrial sector. A prominent strain in the development of economic thought leads to the conclusion that the analytic tools of modern economics are universally applicable to issues arising from scarcity, which are independent of the historical or institutional context in which they are found. These tools have proven extremely productive when applied to the analysis of market-based economic systems. However, their applications to the centrally administered system of the Soviet Union have been received with much less satisfaction. Two examples, which reflect the frustration spanning well over a decade, illustrate the problem.

THE CIA REVISION OF 1976

In 1976, the Central Intelligence Agency announced a major revision in its longstanding estimate of the burden of defense upon the economy of the Soviet Union. For some years the Agency had estimated that the proportion of the Soviet GNP that had been absorbed by defense-related activities was in the 6-8 percent range. With their

1976 publication, that estimate was nearly doubled to the range of 11–13 percent (CIA, 1976, p. 2).

The increased estimate had major implications for our interpretation of the Soviet determination to field military forces and the efficiency of their means to do so. Specifically, given the nearly doubled burden estimate, the Soviet leadership must have been more willing to forgo economic growth and consumer satisfaction than Agency analysts had believed; and on the same grounds, the Soviet defense industries must have been less efficient in producing defense goods (CIA, 1976, p. 2).

As important as the Agency's revision may have been to observers of the Soviet Union, to many it seemed at least equally overdue. The revision followed many years of increasing dissatisfaction and perplexity with Agency analyses of the Soviet economy, its defense sector, and the relation between the two (Marshall, 1975, for example). Although the revised burden estimate and implications drawn from it by Agency analysts satisfied certain of the macro-level criticisms that had been directed toward the earlier estimates, they did little to answer the more specific objections that took issue with the underlying analytic methodology, conceptual structures, and data reliability. In a very real sense, the revision did not inspire confidence. It revealed that, for a substantial period, the nation's largest, most comprehensive, and arguably most competent analytic effort devoted to understanding the Soviet economy and the Soviet defense-industrial sector had been seriously in error. Because there had been such substantial error regarding a major parameter of the economy, what confidence was to be accorded to the underlying analytic structure? Although the revision of the CIA's estimate is now more than a decade in the past, the methodological controversy continues (see, for example, Burton, 1983, pp. 85–93, and the associated replies and rejoinder, 1985, pp. 126–132; for methodological criticisms of broader applicability see, for example, Boretsky, 1987).

THE RAND CONFERENCE OF 1984 AND THE HOOVER-RAND CONFERENCE OF 1988

In 1984, a RAND Corporation conference brought together a group of experts to discuss the four major models of the Soviet economy that had been developed in the United States over the preceding decade or more (Hildebrandt, 1985). Pervading the resulting discussions is the same sense of dissatisfaction with the models, their formulations, and their results as one finds in the criticisms of the CIA analyses

preceding the burden revision of 1976. A summary statement of the conference dissatisfaction is this: The models, in varying aspects of their construction and to varying degrees between models, so "mirror image" Western economic structure, behavioral relations, data, and data constructs that the resulting portrayals of the Soviet economy may be inaccurate and misleading. The models insufficiently represent actual Soviet economic reality, structure, institutions, and behavior (Hildebrandt, 1985, pp. 1, 6, and 9, for example).

In March of 1988, The Hoover Institution and The RAND Corporation brought together a large group of government and academic analysts to discuss the relations between the Soviet defense-production sector and the broader Soviet economy. Of the controversies that emerged, perhaps none was so striking as the range of disagreements with the current official estimate of the burden of defense upon the Soviet economy, which now stands at 15-17 percent of GNP (CIA/DIA, 1988, pp. 31-32). Nongovernmental opinions expressed at the conference estimated the burden as ranging upward from 18 percent, with levels of 25 to 50 percent of GNP being put forward by attendees. Equally striking was the major source that was argued as the cause of the perceived inappropriately low official estimate. It was not, contrary to what one might expect, alleged inaccuracy in the intelligence community's estimate of Soviet defense activity. Rather, the fault was found in the official estimates of the more basic economic parameter, the size of the Soviet general economy in relation to that of the United States. Whereas official estimates put that relative size at 50 to 66 percent of the U.S. economy, some conference attendees saw evidence for the substantially lower range of 30-33 percent. In contrast, other independent analysis has recently criticized CIA methodology for possibly underestimating the rate of growth of the Soviet general economy, as well as its military-economic activity (Boretsky, 1987, pp. 533-540).

Such criticisms, and the uncertainty they reveal, would be severe if applied to any economic analysis effort, but they are particularly troubling when directed toward major governmental and academic sources of insight and prediction regarding the Soviet economy. Insofar as these models and analyses influence—as they are intended to do—our private and public perceptions of Soviet alternatives, actions, and intentions, we must place a high premium on their accuracy. The criticisms span well over a decade and are of such consistent and enduring nature that the analytic shortcomings to which they point are to be laid not so much at the doorsteps of the particular institutions and analysts involved, but to factors more fundamental to our practice of economic analysis.

It is a major argument of this Note that much of the dissatisfaction with present analyses of the Soviet economy derives from insufficient attention to the institutional character of the Soviet system and from an application of behavioral and structural assumptions drawn from Western economic experience. Section I outlines two relevant but divergent themes in economic thought that may, through contrast, suggest both the methodological source of the analytic frustration and its resolution. Section II portrays the features that distinguish market-exchange economies (MEEs) and centrally administered economies (CAEs) and guide our following historical interests. Section III traces aspects of the historical development of the Soviet economic structure with particular attention to features that may be inadequately represented in contemporary modeling efforts. Section IV narrows the focus of examination to those features of the Soviet defense-industrial sector that differentiate it from the general economy in which it is found. Section V suggests an alternative view of the Soviet economic system and indicates recent work in the field of institutional economics that is likely to enhance future modeling efforts.

II. MARKET-EXCHANGE AND CENTRALLY ADMINISTERED ECONOMIES

TWO THEMES IN ECONOMIC THOUGHT

Professor Campbell's frustration is not uncommon among those who have attempted to analyze economies similar to that of the Soviet Union. Walter Eucken, in an analysis of the centrally administered economy of the Third Reich, raised the fundamental question of whether the same economic "laws" are valid in a centrally administered system as in a market-exchange economy (Eucken, 1985, p. 159). He concluded:

It would be scientifically convenient to have a single simple theoretical apparatus of universal applicability, irrespective of whether the British economy of 1900, the German economy of 1939 or that of Russia in 1948 is under discussion. But that is not practicable. The variety of forms realized in practice has to be taken into account, for they are decisive for the way in which the economic process works itself out (Eucken, 1985, p. 196).

Of course, the citations of Campbell and Eucken neither argue nor imply the extreme conclusion that the postulates of modern economics are institutionally dependent for their actual operation. This extreme position has been argued, however. For example, the basic postulate of economic rationality has been seen as dependent upon the emergence of a particular type of economic system—the market-exchange economy—before it could be said to describe the actual behavior of economic agents (Meek, 1977, p. 170). As a more specific instance, von Mises for a time held the position that rational calculation was impossible *in principle* in the allocation of resources under socialism because of the absence of private property (von Mises, 1947, p. 85). Although this particular argument was untenable (Landreth, 1976, pp. 418–419), it is an example of the extreme position.

This "institutionalist" view also stands in sharp contrast to the claim of universal applicability made for the postulates of modern economics by what is surely the substantial majority of modern economists. This view sees the discipline of economics essentially as a way of thinking, the science of choice, and the definitional economic problem as the rational approach to the pervasive phenomenon of scarcity. Under this formulation, economics focuses not

on certain *kinds* of behavior, but . . . on a particular *aspect* of behavior, the form imposed by the influence of scarcity. It follows from this, therefore, that in so far as it presents this aspect, any kind of human behavior falls within the scope of economic generalizations. . . . [T]here are no limitations on the subject matter of Economic science save this (Robbins, 1962, pp. 16–17).

This universalist statement is a powerful claim for the discipline. But it has led, in many instances, to an insufficiently critical application of the very postulates that have provided the basis for its power. The assumptions of marginalism, continuity, and the *Homo oeconomicus* paradigm, for example, have proven very amenable to mathematical methods of maximization and optimization, producing models with substantial explanatory ability. But they have also been applied in ways often seen as mechanistic, ignoring particular institutional characteristics that may critically influence the specific manner in which the postulates manifest themselves.

Consequently, there has been increasing dissatisfaction with the "institutionless aspects of [the] neoclassical orthodoxy" (Putterman, 1987, p. 284) that has characterized "the main lines of Anglo-American" economics in neglecting "the historical and institutional aspects of economic problems" (Hutchison, 1981, p. 164). There is increasing support for the view, often among economists who are major forces within the neoclassical tradition, that there is no generic model with universal applicability (Arrow, 1986, p. 79; Solow, 1986, pp. 23–28). It is often critical to examine the particular constraints under which individuals and institutions act—the incentives, disincentives, and institutional structures characterizing particular social systems—before the particular manifestations of the operation of the economic postulates can be determined.

For example, Buchanan sees much of the profession as "unwittingly trapped in a *mathematical perspective* . . . [in which we] define persons as utility or preference functions and implicitly presume that these functions exist independently of the processes within which persons make actual choices" (Buchanan, 1985, p. 16). The identical behavioral assumptions, specifically those of *Homo oeconomicus*, may result in distinctly different outcomes depending entirely upon differences in the institutional structures that provide the context for their operation (Buchanan, 1980, p. 4). Buchanan argues that the value-maximizing results of cooperative interaction by individuals in a market-exchange economy are critically dependent upon the institutional characteristics of the market itself. Such a result cannot be assumed for or extended to nonmarket forms of economic

systems, or to the arena of political interaction, because these do "not directly embody the incentive compatible structure of the [market]." However,

If the maximization exercise is restricted to explanation or understanding of the individual . . . there is no difficulty at all in analyzing individual choice behavior under differing institutional settings and in predicting how these varying settings will influence the outcomes of the interaction processes (Buchanan, 1987, p. 1433).

The point is not that the basic postulates of economics are institutionally dependent for their operation but that they are not dependent upon the particular context of the market-exchange economy. Indeed, it is the principal contribution of public-choice theory to extend those postulates to the very different arena of political interaction (Lepage, 1982, Ch. 5). The point is that before those postulates are applied explicitly or implicitly to individual behavior within nonmarket institutions—and, thus, to the institutions themselves—particular care must be taken to specify the characteristic constraints that channel behavior within the institution, the "system of punishments and rewards [that] determines the strategy each individual will choose to fulfill his desires," the "logic" of that system (Buchanan, 1987, pp. 85–100).

This detailed attention to the specification of the structure of historically and institutionally determined incentives and constraints is absent from much of modern economic analysis. It may be this missing attention that accounts for the opinion that much of the logic of economic analysis is not operational regarding centrally administered economies. Eucken's decisive "variety of forms" has not been taken sufficiently into account. As Gavin Wright puts it,

useful economic theories *are* historically conditioned, but economists do not often think hard about exactly what these conditions are, and they do not welcome pressure in this direction (Wright, 1986, p. 79).

The absence of sufficient hard thought regarding the historical and institutional distinctions between market-exchange economies and the centrally administered economic system of the Soviet Union may be the basis of the broadest charge of "mirror imaging" that can be brought against the models under discussion at The RAND Corporation conference.

MARKET-EXCHANGE AND CENTRALLY ADMINISTERED ECONOMIES

Of the structural distinctions between market-exchange and centrally administered economic systems, none is more fundamental than the one that concerns the locus of decisionmaking authority and the incentives influencing the decisions made. It is a fundamental—indeed definitional—characteristic of a market economy that the predominant part of economic activity is carried out through a process of individual consumers and producers voluntarily interacting to exchange productive resources, goods, and services, motivated by the search for individual welfare and profits, respectively. As a result of the process of exchange, producers and consumers jointly determine prices, and the more competitive the market conditions under which exchange takes place, the closer the resulting prices reflect the marginal rates of transformation or opportunity costs of the economic system. In a market economy, the state plays subordinate although important roles: It sets and enforces the general structure that defines legal exchange, and it enters the market as both consumer and producer in order to provide public goods as determined by the political process. In so doing, however, the state does not alter the framework of exchange; it possesses the privilege of *primus inter pares* mainly in its relief from the necessity of profit. Consequently, within the framework provided by the state, the composition of output of a market-exchange economy is determined principally by the demand functions of consumers, the supply functions of consumers in their roles as the owners of productive resources, and the technological and resource endowment of the system.

For MEEs, it is fundamental—both as behavioral assumptions and as descriptive characteristics—that consumers will act to maximize their welfare and firms to maximize their profit. The "principle of economic rationality" pervades both demand and supply, which are motivated by quite distinct, separable incentives. Such economic systems can be characterized as economically efficient in maximizing consumer satisfaction. Indeed, maximization of consumer satisfaction can be seen as the "objective" of the market-exchange economy (Gilpin, 1977, p. 22).

In its essence, a centrally administered economy is an organizational arrangement that has as its *raison d'être* the resolution of conflict between the objectives sought by the economy's directors and those that would be sought by consumers and producers in the absence of central administration (Baran, 1952, pp. 382–387; Campbell, 1966, p. 193). It is precisely the unfettered interaction between consumers and producers in a

market-exchange economy—and the resultant economic configuration—that a centrally administered economy is designed to avoid. As a consequence, the locus of decisionmaking, the operative motivations, and, of course, the objectives of a CAE are characteristically different. The overarching objective that CAEs share—whether their form be command, bureaucratic (Hicks, 1969, pp. 9–24), mobilization (Gilpin, 1977, pp. 21, 48), or mercantilist (Earle, 1986, pp. 218–219)—is the achievement of something different than the presumed result of market interaction. That "something" can vary, but in general history suggests that it has been focused upon the state as an entity: the enhancement of state power, state security, and state self-sufficiency, as distinguished from individual welfare. Although this state-oriented objective generally contains military power or war-making ability as a prominent dimension, there is also a strong preference for the preservation of the central administrative system itself (Brown and Neuberger, 1985, pp. 178–179) and the dominant elite that controls it (Gilpin, 1977, p. 21; Pejovich, 1983, pp. 5–6).

As a consequence, a principal CAE characteristic is the removal of decisionmaking authority from the individual economic constituents and its concentration within a central body of system directors (Brown and Neuberger, 1985, p. 178; Eucken, 1985, pp. 194–195). This body plans economic activity according to priorities it holds—in contrast to those of the constituents—"reflecting the dominance of political and ideological criteria over economic considerations in the overall formulation of economic policy" (Brown and Neuberger, 1985, p. 179). This does not mean that the priorities of the central body are necessarily inimical to those of the society's constituents. It does suggest, however, that the individual constituents of a society do not have access to effective mechanisms to influence the operative priorities of the economic system in which they live (Commisso, 1986, p. 36). To what extent the potential resultant priorities of the constituents acting without administrative influence—and therefore presumably approximating those of an MEE—would differ from those of the CAE system directors is not certain. But it would be only by chance that the two would coincide, in which case the administrative apparatus would be superfluous. The extent of divergence between the two will depend upon the social vision of the system directors and the political and economic structure in which they, their constituents, and their administrative apparatus interact, including specifically the sets of incentives confronting the various actors (Commisso, 1986, pp. 19–20, 24, 60). But to explain the continued existence of a CAE

system on rational grounds, one must posit some divergence between the potentially expressed priorities of an MEE and the effective priorities of a CAE system as a whole.

Although there is some theoretic basis for holding that the priorities of CAE planning bodies will reveal systematic similarity (Pejovich, 1983, pp. 6-7), it is certain that they will deemphasize consumption relative to an MEE, possibly keeping it to a minimum (Eucken, 1985, p. 195), and generally favor unbalanced heavy industrial growth with specific sectors reflecting the priorities of the system directors (Brown and Neuberger, 1985, pp. 178, 187; Commisso, 1986, pp. 54-55; Eucken, 1985, p. 195; Gilpin, 1977, p. 48; Pejovich, 1983, p. 7). In any case, the intrusion of administrative preferences and authority shapes the production possibilities that are open to the economy as well as the effective demand that can be expressed (Campbell, 1966, p. 189; Eucken, 1985, p. 190), eliminating the separability of supply and demand upon which certain analytic techniques applicable to MEEs are based (Hildebrandt, 1985, p. 21).

To pursue the objectives of a CAE, the state must intervene directly in economic matters to determine the structure, composition, and distribution of production (Lange, 1932, pp. 199-205). In general, the controlling mechanism of an MEE—market prices as determined by the interaction of supply and demand of the constituents—must be replaced by allocations and incentives determined and enforced by the central administration and its subordinate administrative organs. Although "prices" may play important roles in inducing constituent behavior consistent with the centrally determined objectives, these are indexes or accounting prices set by the central administration in attempts to secure a balance between directed production levels and such undirected behavior as the constituents are permitted. Consumers, for example, may be free to allocate their largely state-determined income across available consumption goods, reacting to relative accounting prices (and queues) in ways thought to maximize their welfare. But such instances of economic rationality are not the major determinants of the economic structure (Eucken, 1985, pp. 158-159). Soviet private plots, aspects of labor allocation, and the recent reform allowing enterprise in production activities not involving the hiring of labor stand as particular examples within the Soviet legal economy. The Soviet extra-legal "second economy" also provides an important forum for economic rationality. But neither the legal nor the extra-legal instances of economic rationality determine the characteristic modes of coordination or control within the Soviet economy.

Much more characteristic of the CAE's controlling mechanism is the attempt to achieve equilibrium and consistency through a complex system of allocations, material balances, discontinuous incentives, multiple-success criteria, and a proliferation of administrative instructions to constituent producing agents (Brown and Neuberger, 1985, pp. 180, 185; Eucken, 1985, p. 178). As a result, CAEs exhibit, at best, "physical equilibrium and arithmetic consistency" in their plans and predominant patterns of behavior, with little evidence "of any conscious maximizing behavior" or economic rationality throughout the system (Campbell, 1966, pp. 200-201; Pejovich, 1983, pp. 5-6), which is essentially independent of such particular institutional forms as the formal private ownership of property (Eucken, 1985, pp. 158-159). Such a controlling mechanism results in an economy in which "the formulation and implementation of plans are pervaded at all levels by bargaining" (Brown and Neuberger, 1985, p. 184) based on the political power of individuals and subgroups and the exchange of "*non*-privately held rights" (Alchian and Allen, 1969, p. 12).

The interactions that determine the allocation of economic resources within a CAE are essentially political. The decision procedures characterizing those interactions are what Leibenstein terms "noncalculating" and nonoptimizing, for example: response to commands or regulations, convention (physical production criteria), standard operating procedures, and habit (Leibenstein, 1986, p. 4). These procedures operate in MEEs, of course, within firms and within and between nonmarket institutions, but they are the exceptions, not the rules, of market behavior. Within CAEs they are the rules of behavior, inherent and pervasive. The replacement of the market, and therefore of its "incentive compatible structure," by such diverse noncalculating decision procedures creates an environment that differs sharply from the optimal conditions characterizing the assumptions of much of standard neoclassical economic analyses. Consequently, theories of political interaction generally may be more applicable to the analysis of a CAE than traditional theories of rational resource allocation (Brown and Neuberger, 1985, p. 184).

III. ASPECTS OF THE HISTORY OF THE SOVIET ECONOMY

INTRODUCTION: THE RUSSIAN EMPIRE

In their thorough and objective analysis of the Soviet economic system, Gregory and Stuart note that the conventional economic performance criteria are insufficient to appraise the Soviet situation, especially since World War II, "because other goals, pursued consistently by the Soviet leadership, are not included. The first of [the necessary supplementary criteria] is the objective . . . of military power. . . . [T]here is a consistent priority assigned to military power" (Gregory and Stuart, 1986, p. 363). Indeed, this view need not be confined to recent history. One would be misguided to view the history of the Soviet landmass as a seamless cloth back to the seventeenth century. Nonetheless, this "consistent priority" represents an element of continuity shared between the institutions and policies of both imperial Russia and the Soviet Union enough to cause Herbert Spencer (1914, pp. 586-602) —and many modern authors—to see ancient Sparta as an archetype for the imperial and Soviet states (Bernstein, 1988).

War and anticipation of war played a major role in the forced industrialization of Russia spurred by Peter the Great. Even more broadly, Russia's competition with more advanced powers forced Peter's imperial state to become "the dominant agency of change; it was through the state that social and economic relationships were altered with the aim of mobilizing resources to increase the power of the state" (Holloway, 1980, p. 66), a dominating role and purpose that characterized the tsarist state to its end (Blum, 1972, pp. 293, 618). Military requirements shaped the structure of the economy in terms that appear wholly in conformance with the present:

Guns, ships, all sorts of munitions [etc.] had the priorities . . . ; [those industries] which met the demand for consumers' goods . . . continued to function much as before, though every now and then Peter would attempt to improve their quality or regulate their products by launching impossible orders . . . ;[the existing] beginnings of a relatively concentrated large-scale metal industry . . . mainly worked for the military requirements of the state . . . and the new iron-works began by being owned and run by the state . . . a general feature of the Petrine industrial development.¹

¹Sumner, 1962, pp. 145-147; for an entirely consistent portrayal, see Nove, 1986, p. 9.

Progress was thought improbable unless state compulsion was involved, and force characterized Peter's industrial and commercial policies. He believed that, "in manufacturing affairs we . . . must act and even compel" and, more broadly, "anything that is new, even though it is good and needful, will not be done by our folk without compulsion (Sumner, 1962, p. 144). It might be fair to say that compulsion by the imperial autarchy was the dominant motivational and organizational force shaping the nation until the revolution: Russia was a society that "accepted coercion as the premise of social organization. A tradition of compulsion and servility . . . became . . . [its] heritage" (Blum, 1972, p. 611).

Given the retarded development of the substantial majority of the Russian population at the time (Sumner, 1962, p. 21) and the limited infrastructure and industry available, progress in Peter's competition with the more advanced countries of Europe required selectivity as well as compulsion. The concentration upon defense and its supporting sectors of the economy was successful, making the Russian empire arguably the most powerful force in Europe by 1761 (Hellie, 1977, p. 6), and providing a base from which Russia could compete militarily with the West through the close of the Empire (Gregory and Stuart, 1986, p. 30). By its very nature, priority-driven progress in the defense sector was by no means balanced generally through the economy and society. The experience of selective prioritization by the central leadership provided the pattern that would be repeated from Peter's rule through the final days of the imperial period and into the modern era. A backward state could compete with more advanced nations by giving priority status to specialized economic sectors and enforcing those priorities with the highest authority of society operating through a combination of bureaucratic administration (Hellie, 1977, pp. 10-14) and personal, often ad hoc, intervention (Sumner, 1962, pp. 144-145).

War and the military had major consequences for Russia throughout the eighteenth century, although it was only well after Peter's reign that the Russian army became recognized as one of the most powerful in Europe. Nonetheless, "enormous sums—over half the state budget—were collected for the upkeep of [the military] machine." In return for such massive consumption of resources, the military brought the mixed blessings of "inflation, currency debasement, and untold human misery, plus national aggrandizement, prestige, and independence." Finally, and perhaps prophetically in relation to the last decades of the century to come, "the impetuses to

economic development in the eighteenth century were many. . . . [P]erhaps the major one was the outside world, which compelled industrialization if the country was to survive military attack" (Hellie, 1985, pp. 364–367).

The military interests did not always receive the direct benefit of the priority system under the tsars. Fuller's contention that the Russia of the late Empire period "was not a militarist or militant state," means, as he says, that "in the eyes of the army leadership, the Russian state did not serve military interests before all else and did not in fact satisfy the most pressing of the army's needs" (Fuller, 1985, p. xxi). It is true that Sergei Witte, the Empire's powerful finance minister in the waning years of the empire, 1892–1903, joined his predecessors from 1881 in constraining the growth of military expenditures in order to divert resources to further Russia's modern industrialization (Fuller, 1985, Ch. 2; Von Laue, 1969, pp. 302–303). It is even possible to see this period, with its relative neglect of the military proper, as unique in Russian history. "In the entire history of Russia there was only one period—the late nineteenth century—when its government underfinanced the armed forces in an effort to balance the budget and build up the country's industries" (Pipes, 1980, p. 2). And it is both possible and appealing to see in this period a developing of private enterprise that was breaking the "close link which existed earlier between the state and the economy" (Nove, 1986, pp. 14–15). But it is useful to consider aspects of these views further.

Witte's policies came in the context of an increasingly obvious and embarrassing gap that had widened between the Russian economy and those of Western Europe after the Petrine impetus faded. The other major European nations were contending for dominance in Europe and around the globe with the industrial might unleashed by the industrial revolution. Witte sought to establish in Russia the foundations of modern national power that were characteristic of the nineteenth century, and it was he who convinced Tsars Alexander III and his son Nicholas II, in turn, that the only hope of Russia's remaining a great power lay in the development of heavy industry and modern communications (Kochan and Abraham, 1983, p. 227; Von Laue, 1954, pp. 62–63). A massive investment in strategic railroads opened the Ukrainian minerals to exploitation and allowed Russian wheat to compete strongly on international markets; the state followed monetary and fiscal policies, imposed protective tariffs, sought foreign capital, and directly intervened in the market with the objective of promoting heavy industry and productive infrastructure over consumer-oriented industry (Gregory and Stuart, 1986, pp. 30–31).

Witte's policies were, in a substantial sense, successful, resulting in "an unprecedented spurt in urban and industrial development, fostered and led by the government under the direction of the [Ministry of Finance]" (Yaney, 1973, p. 313). However, Witte's success was dependent upon his closeness—while it lasted—with the tsars. His chief measures were implemented through the authority of the autocracy and quite often through intentional circumvention of normal channels of government (Yaney, 1973, pp. 277–280). Often viewed as a liberal, and certainly viewed as a liberal in his economic policy as expressed in public pronouncements (Von Laue, 1954, p. 64; Yaney, 1973, p. 277), Witte obscured the powers he exercised through the autocrats even as he increased the centralization of economic control under the state (Von Laue, 1954, pp. 60–61). In fact, "Witte was a life-long advocate of . . . the ubiquitous imperial bureaucracy" and would have had it extend "from the top down to the grassroots among the peasant villages in a single, monolithic organization" (Von Laue, 1951, p. 188). Witte's apparent liberalism in urging Nicholas II to issue the October 1905 manifesto establishing the Dumas as legislatively superior to the tsar was a counterrevolutionary tactic to protect the monarchical system upon which Witte's efforts had depended; it was Witte who weakened the power of the Dumas before it first met (Brinton, Christopher, and Wolff, 1967, pp. 289–291; Yaney, 1973, pp. 277). Witte used the power of the state and its bureaucracy to force Russia into the modern international environment, substituting state compulsion for the weak force of private entrepreneurship and making the emerging capitalist class "the servants of the state." He sought "to mold [Russia's] habits and values to make them conform, voluntarily or involuntarily, to [the state's] discipline" (Von Laue, 1969, pp. 304–307).

Witte possessed an enlightened view of the nineteenth century base of national power and sought to pursue it in a manner adopted by many a twentieth century nation (Von Laue, 1954, pp. 60–74, *passim*). However, as contemporary as Witte's views of the economy were in the context of nineteenth century Europe, and as nontraditional as they were in the context of nineteenth century Russia, in practice their effective expressions were no less those of Buchanan's *dirigistes* (Buchanan, 1985, p. 8) than were those of Peter before him or of the Bolsheviks and Paul Baran to follow. In general and in essence, Russia's effort toward industrialization in the last decades of the nineteenth century was a forced one. Holding a vision of the future that demanded present sacrifice for future benefit and required radical transformation of traditional modes of behavior,

the state—led by Witte with the hesitant and temporary support of the tsar and backed by a small capitalist class—again had to compel change: The economy remained closely linked with the state.

If we adopt Fuller's definition of the militant or militarist state, then Witte should be described as something other than a militarist; perhaps he should even be described, as he has been, as a "staunch antimilitarist" (Pipes, 1980, fn. 2). Witte's public statements prominently criticized excessive military spending and militarism generally, and he saw clearly that the success of his attempts to industrialize Russia depended upon a peaceful environment in which the productive capacities of his nation could be realized (Von Laue, 1951, p. 187). And, as Fuller has shown, Witte's long tenure as Minister of Finance saw continuous battles between his ministry and the Ministry of War, which the latter generally lost. As a consequence, army expenditures during Witte's time continued to decline as proportion of total imperial state expenditures; that they increased substantially in absolute terms does not prevent the conclusion that Witte's policies achieved a substantial reallocation of resources away from the military and into the broader national development effort (Fuller, 1985, Ch. 2).

But Witte's deepest motives were directed toward maintaining and building Russia's national power, which, as a disciple of List, he saw as fundamentally dependent upon a modern industrial base such as Russia did not then possess. In the more advanced industrial development of the other major European powers, and in the conflicts of interest with Japan, Witte saw threats to both Russia's sovereignty and its hegemony in the geopolitical sphere of the less-developed Asian countries (Von Laue, 1951, pp. 177–181).

In the face of such threats there was no time for spontaneity, no security for giving priority to social welfare. Witte's case, in contrast to that of his critics who thought in terms of popular well-being, was squarely based on the exigencies of power politics (Von Laue, 1969, p. 307).

To Witte, military power per se was not a principal missing element in Russia's efforts to maintain and enhance her power in the modern world. He believed, correctly, that the army could not be sustained in its previous dominance of the state budget while the state built the economic base required by a modern national power. But equally certainly, as one of the most successful and capable Russian statesmen of the late Empire, he was not unaware of the critical role military power played in the late

nineteenth century. In his candid and crucially important secret memorandum to the tsar in 1899, Witte alludes to an element of power distinguishable from the economic and political dimensions:

She [Russia] is proud of her great might, by which she jealously guards not only the political but also the economic independence of her empire (quoted in Von Laue, 1954, p. 66).

In defending his final budget report to Tsar Nicholas II, Witte is more candid:

What requirement is the most pressing? Obviously that on which the very existence of the country depends, its invulnerability from without. . . . From an economic, humanitarian point of view it is to be regretted that mankind is not imbued with the high ideal of universal peace. Nevertheless, at the present age we are in the grip of an iron law which decrees that the requirements of culture may be satisfied only from what remains after the expenditures for defense have been covered (quoted in Von Laue, 1969, p. 307).

And, perhaps with more regret than approval, he is explicit in his memoirs:

In truth, what is it that has essentially upheld Russian statehood? Not only primarily, but exclusively the army. Who created the Russian Empire, transforming the semi-Asiatic Muscovite tsardom into the most influential, most dominant, grandest European power? Only the power of the army's bayonet. The world bowed not to our culture, not to our bureaucratized church, not to our wealth and prosperity. It bowed to our might (quoted in Pipes, 1980, p. 1).

The closing decades of the nineteenth century, therefore, represent a substantial change in certain of the general means by which the continuing priorities of the Russian state were pursued. The military received less emphasis and the economy much more, while the state remained the principal mechanism for modernization. But the priority objective of national power, although newly interpreted, remained unaltered. These changes were brought about, in large part, by statesman who not only sought national power, but possessed a broad and long range conception of national power appropriate to the modern world. Witte realized that the foundations of national power were no longer confined to the traditional military per se, but were critically dependent upon a modern economic base that would support the full range of international competition that we

witness in the twentieth century. This same conception emerges clearly, as we shall see, in the Soviet discussions of the proper relation between the economy and the state during the 1920s and 1930s. It is, further, a conception fundamental to the Gorbachev reform efforts of the 1980s.

More specifically, the means Witte employed did not differ conceptually from those of Peter or from those of the Bolsheviks and their successors. The power of the state was the dominant agency of change, as exercised through the organs of the state, to compel Russian society toward a higher good—as envisioned by a few—than it would have pursued voluntarily.

PROTEAN DEVELOPMENT: 1917–1928

It may be true that 1928 and not 1917 was the year of the Soviet economic revolution (Hardt, 1979, p. 205), but if so it was definitely not from want of trying. Marx had left the new regime few guidelines by which to organize and operate either the political or economic structures of the new socialist state (Nove, 1986, pp. 7–8). Nonetheless, it is certain that some combination of ideology and events formed an economic structure involving central control by the state—replacing the market—as a principal element (Gregory and Stuart, 1986, p. 51; Remington, 1984, p. 50). The model lay all about the fledgling state in the examples set by the warring capitalist nations. The Bolsheviks "saw in the wartime societies [of the] . . . other combatants an organizational model of the fused and centralized power which might be employed by a proletarian dictatorship for the construction of an entirely new society" (Remington, 1984, pp. 8, 14–17). If Marx had not foreseen the need for centralized economic administration in a marketless economy, it was no less a functional necessity for the Soviets than it had been in Peter's attempts to mobilize the state's resources (Nove, 1986, p. 7) or in Witte's attempt to force capitalist enterprise upon the recalcitrant traditional society the Bolsheviks now governed.

The approach to "war communism" was neither ideologically nor programmatically consistent. "For three years, [the Bolshevik party] lived from crisis to crisis, improvising strategy and makeshift solutions . . . the actions and statements of party leaders being inspired both by what had to be done and by half-formed conceptions of what should be done" (Cohen, 1973, p. 60). By the time of the Brest-Litovsk treaty, the initial Bolshevik attempts to control the economy had aggravated the chaotic state of

the war-torn nation to the point where Lenin, in April of 1918, announced policy changes foreshadowing those of the New Economic Policy (NEP). By the summer, this early approach to moderation was doomed by events. The party's growing concerns over capital expropriation in the German-occupied territories, fears of inadequate grain supplies for the urban areas, and, most important, the outbreak of civil war brought a radical shift in which "the Bolsheviks fought to survive by extending the party-state's control over all available resources. The result was war communism, an extreme example of the economy of total war" (Cohen, 1973, pp. 69-78).

Most characteristic of the war communism period of 1918-1921 was the "extensive 'statization' of economic life . . . [wherein] the state grasped every economic lever within reach, and a vast, cumbersome bureaucracy mushroomed into being" (Cohen, 1973, p. 79) to feed the central administration information and to receive, execute, and monitor directives from the top. To meet these needs, the new government created a new bureaucratic entity for virtually every need and turned to existing organs outside the regular administrative structure (such as the Cheka) as the quantity and quality of human resources proved inadequate to operate the new complexity of administration (Remington, 1984, pp. 147-160). All this was to no avail; the magnitude of the information-coordinating function that had previously been performed by the market, however imperfectly, was too great.

Above all, the center lacked basic information about the performance of the economy. It had little idea of the size of the state sector. . . . Lacking information about the availability of fuel, raw materials, and labor . . . [the bureaucracy] issued blind production orders. . . . [T]here was virtually no meaningful planning of production (Remington, 1984, p. 154).

Faced with growing chaos, the policy of "udarny"—or shock tactics entirely reminiscent of the Petrine period—was implemented. Special responsibilities were laid out, intermediate levels of administration were eliminated, and attention was focused more narrowly on priority activities. The priority system was begun in 1918, concentrating on the needs of the defense industry and its workers, and was extended after 1919 "under uncontrollable political pressures" until by 1921 more than 13 priority categories had been established (extra-shock, shock, half-shock, etc.) applying to well over half of the enterprises and workers in the productive branches of economy (Remington, 1984, pp. 155-160). To the extent that the policy was concentrated upon

defense requirements, it achieved the crucial success of securing victory in the civil war for the Bolshevik regime.

However, as the civil war ground to a close and the priority system extended throughout the economy, the policy's rationale disappeared along with its effectiveness, which depends upon the limited extent of its application. The economy was in chaos, as was society generally, with hopes fading for supporting socialist revolutions in the capitalist nations of Europe. A retreat from war communism was necessary, but it entailed the risks that decentralization and private trade and production held for the political control of the Soviet leadership. In the failure to establish a socialist economic system, the Bolsheviks were successful in achieving their primal short-term goal: winning an externally abetted civil war. In this success—which was a clear precondition to establishing a communist state—the forceful militarization of the populace and the economy in general were critically important. It may be that "the attempt to build the new state by means of mobilizing society . . . prevented the regime from establishing the self-sustaining social institutions on which a socialist regime depends" (Remington, 1984, p. vii). Nevertheless, the mobilization of society and the subsequent triumph in civil war were accompanied by and achieved through the ideological rationalizations and institutions of a communist system:

The impact of this fierce experience [1918–1921] on the authoritarian party and political system that emerged can hardly be overestimated. For in addition to reimposing centralized bureaucratic authority, it brought about a pervasive militarization of Soviet political life, implanting what one Bolshevik called a 'military-soviet culture' that lived on after the civil war itself had ended. Equally important, by mid-1918 political survival had become intertwined with another, only slightly less consuming goal: the rapid, and in significant measure forcible, transformation of Soviet society along socialist lines. And while this experiment also came to an end, it, too, influenced political events for many years to come (Cohen, 1973, p. 60).

It is not our purpose here to examine the proportions in which the intertwined influences of ideology, pragmatism, intent, and the force of events contributed to the emergence of war communism. More to the point is the profound effect the experience had upon the subsequent development of the Soviet system. All Bolsheviks of the period "took pride in this era, when seemingly certain defeat was turned into victory." If the party's "democratic norms of 1917, as well as its almost libertarian and reformist profile of early 1918, gave way to ruthless fanaticism, rigid authoritarianism, and pervasive

'militarization' of life on every level," war communism was nonetheless "the sentiment of the party majority" and Lenin, in 1919, saw in it the "final, stable form" of communist policy. "Henceforth, 1918–1921 would be the 'heroic period,' establishing a tradition of martial defiance in the face of the allegedly impossible" and establishing "a new reference point for future policy debates" (Cohen, 1973, pp. 79, 87).

Under the pressure of a devastating civil war, unavoidable measures for total mobilization of material and human resources for a life-and-death struggle—including rationing, centralization, and mass terror—merged peculiarly with an ideological construct that mistook the egalitarianism of poverty and wartime brotherhood not only for that of socialism, but also for that of communism (Lewin, 1974, p. 9).

Success, compulsion, communism, and militarized mobilization were therefore conjoined in the Bolshevik view and would reappear to shape the strategic thought of the 1920s and 1930s concerning the proper relationship among society, the economy, and military power.

By early 1921, however, the economy and society in general were in chaos after seven years of international and civil war. With the end of the civil war, the discrepancies between the visions of 1917 and the horrors of life in Bolshevik Russia led to increasing unrest among the urban workers and peasants. The culminating Kronstadt rebellion in February awakened the party leadership to the threat of loss of support within the country itself. In what was initially conceived as a limited measure to encourage peasant agricultural production and deliveries to the urban centers, Lenin announced in March 1921 the replacement of grain requisitioning by a fixed tax in kind, leaving the surplus production to the peasants' disposal. Through this initiating policy change, the New Economic Policy "entered surreptitiously, few at [the Tenth Party Congress] appreciating the enormity" of the consequences it would entail.

By abolishing requisitioning and necessitating some form of regularized trade between town and country, [it] put an end to war communism . . . [and brought] the restoration of private capital, market and monetary exchange, the denationalization of many enterprises, and thus the diminishing of the socialist or state sector (Cohen, 1973, pp. 106–124).

In its implementation, the NEP, like war communism, was not the result of a preconceived program; it developed "willy-nilly . . . according to its own internal logic"

until, by 1923, it represented the "the first modern, mixed economic system," a near antithesis of the war communism that had preceded it (Cohen, 1973, pp. 123-124). The NEP brought "civil peace, political stability, and economic recovery" to the Soviet Union, and provided a period of "significant social pluralism within the authoritarian framework of the one-party dictatorship. For although the party's monopoly of political power was zealously defended, pluralism and diversity in other areas was officially tolerated and even encouraged" (Cohen, 1973, pp. 270-273). It also brought an intense period of debate within the party as "the superficial party unanimity evoked by civil war quickly dissolved into waves of profound disagreement and prolonged disunity" (Cohen, 1973, p. 107), which would last until Stalin terminated the debate in 1928-29 (Ellison, 1974, p. 255; Lewin, 1974, pp. 10-32 and Ch. 2).

The NEP itself was perhaps the major focus of debate during the period. The economist Preobrazhenski and others soon began to criticize NEP from the party left—a position later co-opted by Stalin—as denigrating the means and accomplishments of war communism, leading inevitably to renewed conflict with petty bourgeoisie and providing insufficient stimulation to state heavy capital accumulation, which, he argued, should be rapidly pursued at the expense of the peasant sector (Cohen, 1973, pp. 130, 161). However, it was Bukharin, senior Bolshevik and chief party theoretician, who provided the theoretic justification for the NEP and who was the principal author of the controversial policies that extended the permissive policies more extensively into the countryside (Cohen, 1973, p. 162).

All Bolsheviks shared the goal of a modern industrialized Soviet Union. They agreed further that the Communist party should hold monopolistic political authority and wield formative influence upon the economy by control of the "commanding heights." What divided them was the means to attain such industrialization. In view of the imperial period preceding NEP and the Stalinist period following it, aspects of Bukharin's defense of NEP stand out in contrast. Central to his argument was the statement—startling in the Soviet context—that "Our economy exists for the consumer, not the consumer for the economy. This is a point which must never be forgotten" (quoted in Cohen, 1973, p. 173). Bukharin saw the urban and rural sectors of the economy as constituting "a single organism" in which each sector's supply and demand functions were consistent and reinforcing, enabling a "balanced" and simultaneous development of both sectors with the pace of development determined by the force of

mass consumption. However, most of the Soviet population were peasants, so this entailed the adaptation of industry to the peasant market, beginning with consumer-goods production and allowing heavy industry to follow as the chain of linkages stimulated it. Given the model's reliance on peasant consumption, extensive and forceful extraction of the surplus from agriculture could not occur. The pace or "tempo" of development initially would be moderate. Consistent with his conviction that economic development should serve the interests of the masses—both the proletariat minority and the peasant majority—Bukharin demanded:

'decisive, full, and unconditional transition to the methods of persuasion.' The party was to abandon force as its *modus operandi* and henceforth 'stand for persuasion and only for persuasion' in dealing with the masses. . . . If the new economics was evolutionary, the new politics was pedagogical—paternalistic, benevolent, and gentle.²

Bukharin's view of the process by which socialism could evolve had gained general acceptance—acquiescence, in some quarters—within the Bolshevik leadership by the mid-1920s. It has even been observed that the "NEP had become an all-party policy and model of Communist rule" at that time (Cohen, 1973, p. 276, emphasis added; see Lewin, 1974, p. 16, for a supporting but more qualified view). This may be too general, although it is certainly true that most of the Bolshevik leaders can be found on both sides of the issue at one time or another. Bukharin certainly saw the moderate and humane NEP system as the model for the long-term development of socialism and communism. Others, on the left, were comfortable with the NEP only as a transition, a "breathing space" necessary after the trauma of war, before a resurgence of socialist accumulation. To the left, led by Preobrazhenski, the NEP was an unavoidable, temporary, and bitter compromise with the peasant, which achieved success on the basis of the dwindling underutilized industrial capacity (Erlich, 1974, pp. 219–222). The conflicts among these positions, at times muted or hidden, would preoccupy the Bolshevik leaders until they were resolved in the climacteric confrontation between Bukharin and Stalin in 1928–29.

During the early years of the NEP, no particular emphasis was placed upon defense industrial capacity, although the Bolsheviks retained state control of the

²Cohen, 1973, pp. 130–203; internal quotes Bukharin's.

commanding heights of the economy—defined to include the defense industries—and by 1920 had established defense-economic coordination in the Council of Labour and Defence (Checinski, 1985, p. 61). However, left to themselves in peaceful times, markets pay no particular attention to national defense. As a consequence, the industrial capacity that had supported the recent war effort provided a reservoir of excess capacity—amounting to approximately 50 percent in the engineering industry (Carr and Davies, 1971, p. 406)—upon which civilian-oriented production could expand as the armaments industry as a whole was neglected. By the middle of the decade, rising international tensions returned attention to the armaments industries, which were described as being, in 1926, "the weakest spot in our whole economy and certainly the weakest in industry" (Voroshilov as quoted in Carr and Davies, 1971, p. 426). Several military thinkers—for example, Frunze, Shaposhnikov, Tukhachevsky, Lebedev, and Voroshilov—argued that the economy should be consciously shaped to serve, and indeed to be subservient to, the defense requirements of the state. Among their main themes were the "full integration of the non-military and military sectors of the economy and state administration," an autarchic Soviet economy strengthening the country's defense capacities under a centralized and state-owned industry, and the configuration of civilian industry to act as a buffer to the military-industrial sector in preparation for mobilization. In general, there was a "prevailing view . . . that mobilization should be fixed permanently in the economic policy of the state; it advocated gradually adapting the whole economy to the needs of war" (Checinski, 1985, pp. 59–70, *passim*; Carr, 1971, pp. 312–315).

By late 1926, a "drastic reform" had been accomplished dispatching plenipotentiaries throughout industry to ensure priority attention to defense production orders (Carr and Davies, 1971, p. 427), and the ensuing several years saw the development in thought and action of the concepts of adapting the economy to the needs of war. In particular,

Two complementary approaches were made to the problem of maintaining a large capacity for swift conversion to war production. The first was to permit defence factories to engage in civilian production in order to retain their capacity and labour force . . . the second approach was that civilian

factories should take on defence work, and that new civilian factories should be designed with defence needs in view.³

Strategic location of industrial capacity, including the duplication of such capacity within the interior of the country, had been an increasing theme since mid-1927, and "was undoubtedly a major factor in determining the location of many major new construction projects incorporated in the [First Five-Year] plan" (Carr and Davies, 1971, p. 431), with the Ural-Kuznetsk Combine (UKK) a prominent example. The UKK was one of a number of projects the Soviets undertook to establish industrialization upon the untapped resources of the far Urals and Siberia, with strategic considerations of defense and national power as the principal justifications. In this particular case, the UKK iron and steel works required supplies to be delivered over a 2,000-kilometer rail route, feasible only with special freight charges entailing substantial losses for the railway. The UKK project was not finally approved until it was incorporated in the draft of the First Five-Year Plan in early 1929, yet the arguments brought to bear for it show clearly how ideological, economic, and geopolitical considerations were fused (Carr and Davies, 1971, pp. 431-444, particularly pp. 439-440) to advance the Party's imperative concern, the "rapid transformation from an agriculturally based, weak national power to an industrially-based strong great power" (Hardt, 1979, p. 207).

In its successful revival of agriculture, the peasantry, private trade, and consumer-oriented industry, the NEP had not supported that imperative. It had, in fact, widened the sphere of private economic activity, threatening the ideological and political base of the Soviet regime and leaving investment and military commodities no higher as a share of industrial output than they had been before 1917. To a political regime with the primary objectives of building socialism and the expansion of military capacity, "this was an unacceptable outcome" (Gregory and Stuart, 1986, p. 66). Throughout the NEP period, the mechanisms of Party and Soviet central control had greatly expanded, providing substantially enhanced political ability to direct the affairs of the nation compared with that at the disposal of the founding Bolsheviks (Cohen, 1973, p. 273; Remington, 1984, p. 179). By the close of the NEP, therefore, ideological and political

³Carr and Davies, 1971, p. 425; see also Checinski, 1985, p. 70, for the extension of this thought into the 1930s; see Cooper, 1986a, p. 33, regarding this period and *passim* for extension into the period after World War II; Checinski, 1984, examines the corresponding but importantly different Soviet military-economic doctrine in the nuclear era.

commitments, national security concerns, and strengthened Party control combined in providing essential bases for Stalin's industrialization drive, which "had as its major goal the development of heavy industry as the basis for economic growth and military power, and it was in these terms that it was justified" (Holloway, 1980, p. 70).

The necessity for rapid industrialization, in part for reasons of national security, was indeed the principal basis upon which Stalin and his supporters argued the departure from the policies of NEP. However, underneath this argumentation lies an equally important insight into the nature of economic change within the Soviet system. The controversy, first between Preobrazhenski and Bukharin and later between Stalin and Bukharin, is most commonly known as "the great industrialization debate." It could, with at least equal reason, be termed "the great agricultural debate." The need for industrialization was not at issue between the protagonists, it was agreed. The basic issues dividing the protagonists were the pace of industrialization and, critically, the appropriate price to exact from the agriculture sector to support it. Stalin's economic argument that collectivization was necessary to support a satisfactory pace of industrialization was questionable at best; he was not well versed in economic matters (Ellison, 1974, p. 254). In fact, neither the left—whether led by Preobrazhenski or Stalin—nor the right—whether led by Lenin or Bukharin—possessed a thorough and coherent model of the interactions between the agricultural and industrial sectors (for example, Lewin, 1974, pp. 3–32, especially p. 16).

Several factors strengthened the left's call for change during 1927–28. The period of "easy" accomplishment for NEP was ending. Excess industrial capacity had been absorbed; peasant productivity had not been substantially improved, although the positions of the kulak and petty bourgeoisie had; and the effect of the international tensions of 1927 accentuated the left's argument for rapid advances to modernize and enlarge the nation's industrial capacity and its military force. However, agricultural issues—specifically the critical drops in grain collections in late 1927 through early 1929—were the cusps upon which the old party unity was finally destroyed and a new and ominous unity was formed.

The intervening disunity allowed Stalin to initiate and extend forced collectivization into the countryside and to exploit the disarray in the gradual consolidation of his political base. Throughout this period, "the imagery, analogy, and inspirational validity of the civil war" infused Stalin's argumentation until "they

composed his great programmatic theme of 1928-9," providing the ideological and theoretical base for the eventual "mobilization" of society under a "revolution from above" (Cohen, 1973, p. 314). Against such heroic images drawn from the origins of the Bolshevik state, Bukharin's relatively moderate peasant-based NEP methods were characterized as a feckless "'theory of continuous concessions' which sought to achieve socialism 'without particular fuss, without struggle, without difficulties,' insufficient to 'catch up and surpass' the industrial West quickly" (Cohen, 1973, p. 328). Under the fiction of monolithic unity, which both sides generally maintained in public, the debate was covert, carried out within the narrow confines of the party (Cohen, 1973, p. 322). More specifically, the effective arena of decision was a select, informal, oligarchic subset of the Central Committee, a limited group of "'practical politicians' who had risen to high 'military-political' authority in civil war" and had held authority thereafter (Cohen, 1973, p. 327). It was within this group that Bukharin and Stalin struggled for support, knowing that formal Committee ratification would follow the outcome determined by the oligarchs. By April of 1929, those "influentials, . . . receptive to Stalin's assiduous cultivation of Bolshevism's heroic tradition," preferring his image and leadership and the issues he raised in his argumentation, and connected to him through his position as General Secretary, had chosen Stalin. Formal ratification followed quickly and overwhelmingly (Cohen, 1973, pp. 327-329). By the end of 1929, what had remained of moderation in Stalin's actions had gone; the emerging autocrat lay the foundations for "policies unlike anything ever advocated by any Bolshevik group" (Cohen, 1973, pp. 329-336).

The eventual success of Stalin's policies had little to do with economic rationale. The question of collectivization, for example, "was settled in advance, politically, and subsequently rationalized economically with striking distortions of economic reality" (Ellison, 1974, p. 255; also Cohen, 1973, pp. 276-336, particularly pp. 326-328). In this transition there was nothing of "the principle of spontaneous order, or spontaneous coordination," which may be seen as the essential, identifying characteristic of economic activity (Buchanan, 1985, p. 20). However abetted or hindered by external events, the transition was determined by the efforts of a fairly small number of individuals struggling within the limits of an ideologically and organizationally confined party structure. The factors that determined the result are to be found in personality, organizational ability, appeal to a common extraordinary tradition, control of a political machine and apparatus,

and the willingness to use the power conveyed by that control to coerce. The transition was essentially a political phenomenon.

The dominance of political influence upon changes in economic structure is a basic characteristic of CAEs. Indeed, the desire to supplant market forces with the political ability to shape the economy is, one might argue, the principal *raison d'être* for the existence of a CAE. Moreover, as in the transitions both to and from NEP, such politically determined decisions frequently result in sharply discontinuous change with far-reaching consequences. Finally, the more concentrated is the political power, the narrower is the range of personalities that inform it, and the more dependent the supporting administrative bureaucracy, the greater the potential for such discontinuous change with pervasive effects. The repercussions of the transition from NEP to the Stalinist system "spread over the structure of party, government and society, and moulded them into new shapes not foreseen by those who made the revolution" (Carr, 1971, p. ix).

DEVELOPMENT OF THE MODERN FORM

Pre-World War II

With Stalin's "revolution from above," initiated by the First Five-Year Plan and the collectivization of agriculture, a determined and largely successful attempt was made to eradicate elements of market interaction and capitalism from the Soviet economy. The objective sought was "a nonmonetary, rationally and 'directly' planned economy [that would provide] the advent of the purest socialism" (Lewin, 1974, p. 97). From the outset, however, these characteristics proved impossible to attain. "The Stalinist group suddenly turned optimal figures into minimal ones. . . . [W]hat remained was no longer a plan but a kaleidoscope of escalating figures, an ersatz rationalization of the breakneck heavy industrialization" (Cohen, 1973, p. 330; Rutland, 1985, p. 87) that was pursued with a "thoughtless haste" reminiscent of Peter the Great (Lewin, 1974, p. 100).

As a general statement, the actual plans of the Stalinist period portray a consistency in their structure that has been described as a policy of "balanced growth" (Zaleski, 1980, p. 492). Clear emphasis was placed upon heavy industrial advances, but growth in agriculture and the production of consumer goods were planned at quite high rates. In fact, however, the plans were incapable of being carried out. The "kaleidoscope" of specified goals exceeded the administrative and productive abilities of

the system. The resulting processes of planning and plan implementation—particularly the distinction between the products of the two processes—provide a clear historical base for Ericson's distinction between "ex ante" and "ex post" priorities (Ericson, 1988, pp. 3–7). The plans expressed a wide range of desired goals to which many could subscribe; they served as a "politico-administrative device for securing the maximum exertion of the nation's human resources" (Rutland, 1985, p. 88), or, more directly, as "a sop to public expectations" (Ofer, 1987, p. 1799). The plans "[flattered] national ambitions and [promised] a better life," mobilizing the workforce (Zaleski, 1980, p. 504). However, when confronted by the limitations of the economy and system, the leadership had to make choices within the set of simultaneously infeasible objectives.

Faced with the inability to achieve planned goals in all the desired areas simultaneously, the Soviet political leadership seized control of the allocation process to ensure that their highest priorities were achieved. "Priorities are set as to which targets to aim at first, when difficulties arise . . . the low priority sectors become substitutes for the absent reserves or slack in the plan" (Ofer, 1987, p. 1802). Subordinate objectives were fulfilled or pursued to the extent that the priority objectives had been attained. The "ex post" priorities were revealed. By reintroducing the "shock tactics" of war communism, resources were concentrated upon the priority objectives, which reflect the defense-economic thought of the 1920s and 1930s, while lesser goals were neglected. The actual priorities of the leadership were clearly reflected in the severely unbalanced economic structure that resulted and that has been passed from the 1930s into the present.

Construction of modern factories, economic independence, strengthening of military power, and to a certain extent, catching up with the Western countries are all objectives that [were] quite well fulfilled. This is not the case for housing construction, communal services, and everything that reflects the standard of living.⁴

World War II

The configuration or "adaption" of the economy to the strategic defense needs of the state—which began not later than the First Five-Year Plan—received, in Soviet eyes, nothing but justification from the devastating trial of World War II. Few institutional

⁴Zaleski, 1980, pp. 490–504, quotation at p. 504; see equally Lewin, 1974, pp. 97–104; Ofer, 1987, p. 1793, extends this pattern into the mid-1960s.

changes were required to achieve the massive relocations and sacrifices—economic and more broadly social—that secured and sustained the Soviet capacity to wage and win "The Great Patriotic War" (Linz, 1985, p. 3). By the time of trial, the society had been configured, if incompletely and far from perfectly, for Stalin's view of war: "an all-round test of a nation's material and spiritual forces" (Stalin quoted in Harrison, 1985, p. 237). Changes that were implemented find their rationale not only in the antecedents of Russian or Soviet history—they are characteristic of both—but in the inadequacies inherent in attempts of the few to compel the many to act in ways they would not. They are therefore equally characteristic of market economies turned by government to answer crisis, just as they are uncharacteristic of unconstrained market economies.

Principal among the limited number of institutional changes was the establishment, in 1941, of the State Defense Committee (GKO) chaired by Stalin. Patterned upon the Bolshevik's Council of Workers' and Peasants' Defense, the GKO was accorded "the entire plenitude of power in the country . . . [to] circumvent the traditionally rigid and time-consuming bureaucratic procedure" in carrying out the requirements of war (Lieberman, 1985, p. 60). Although the GKO relied heavily upon the existing administrative channels of the Party and state apparatus, it was critically supplemented by a system of GKO plenipotentiary representatives who were dispatched throughout the established system to ensure that the GKO priorities and decisions were implemented (Lieberman, 1985, pp. 60–66). This superimposed plenipotentiary system—which finds its precedents with Peter and Lenin as much as in the "extraordinary measures" Stalin imposed in his 1928 initiation of collectivization—represents not only an extension of personal rule but a characteristic element of a centrally administered system enforcing its priorities in situations of insufficient resources whether for war or economic development.

The effects of the war were more fundamental and longer lasting than the modest institutional changes would suggest. In waging and winning The Great Patriotic War, the Soviet Union had not only successfully tested its material and spiritual forces, it had validated the organizational structure by which those forces were mobilized and commanded in the war and, indeed, as they had existed for a decade before the war. It was the authoritarian, centrally administered command system of Stalin that had been validated in Soviet perceptions, a validation only strengthened by the trace of its lineage to the heroic era of Lenin and the civil war. It had been revealed "capable of greater

centralization and concentration of resources, greater mobilization and maneuverability than its imperialist rivals . . . [and superior in] both peaceful and warlike tasks" (Harrison, 1984, p. 243). Until the anti-Stalinist reaction after the dictator's death, this perception of superiority continued the dynamic of militarization in the economy. The reaction itself, when it came, was directed not at the basic institutional structure that had been put into place under Stalin but at the personification and concentration of power in a single individual. Thus, through the Brezhnev era, the lessons of the war "continued to stress the legitimacy of the basic Soviet institutions laid down under Stalin and the importance of collective [oligarchical as opposed to dictatorial], law-governed administrative authority in their management" (Harrison, 1984, pp. 237-241). Consequently, although the war experience did—in reaction to the terrors most closely identified with the dictator—inspire "reform of the most oppressive and violent aspects of Stalinism after Stalin's death," it served as a

harmful reinforcement of a backward-looking, nationalist outlook, the idealisation of the authoritarian state, the exceptional stress on military and coercive aspects of national security (Harrison, 1984, p. 245).

Thus, the influence of World War II upon Soviet society and the economic structure was far more pronounced and prolonged than the limited and quite traditional institutional changes the war entailed specifically to meet the conflict. The more pervasive and substantial effects were the validation, transmission, and perpetuation—despite the intervening and vacillating attempts at reform—of the essential institutions, behavioral patterns, and objectives not only of the Stalinist command economy, but those also of the civil war period, well into the last quarter of this century. It is certainly the case that the lot of the Soviet citizen has improved substantially since Stalin's time. The extreme forms of coercion and punishment have been substantially moderated, and consumption carries a more prominent, if still instrumental, weight within the objectives of the Soviet leadership. But since Stalin's death, there have not been "any significant changes in the basic system and its modes of operation" (Ofer, 1987, pp. 1808-1809).

Have any reforms in Soviet history been transformational ones? Probably two have: the takeover of the 'commanding heights' in 1917 . . . and Stalin's 'forced draft' industrialization and collectivization in the 1930s. . . . But since the 1950s it has been apparent that Stalin's economic

'reform' had been established too firmly. So far it has proved impervious to another transformation.⁵

The fundamental aspects of the Stalinist economic structure, with all of their historical weight, are the core impediments with which Gorbachev now contends. However, if history hinders the Gorbachev reforms, it also lends assistance. The brief period of moderation Bukharin led in the 1920s stands as a model for internal Soviet reform that can trace its Bolshevik pedigree to the heroic period through the testament of Lenin (Cohen, 1982, pp. xvi-xvii; Lewin, 1974, pp. xii-xiii and Ch. 12). In late 1987, Gorbachev, seeking to buttress the political base for reform, was attempting the rehabilitation of Bukharin that Khrushchev could not accomplish. Gorbachev's success in Bukharin's rehabilitation would be a major achievement, not so much to herald the resurgence of moderation in the Soviet Union as to mark Gorbachev's marshalling behind him of the oligarchy that now governs the administration of the nation with him. The political rehabilitation of Bukharin and his associates in moderation will only follow the political acceptance by the present system directors—of which Gorbachev may be no more than *primus inter pares*—of a consensus view of society broadly consistent with the model that it implies.

How this model would be interpreted is unclear. If Gorbachev is appealing to the light of moderation in Soviet history, certain of his actions recall a darker image. Yeltsin's demotion in November of 1987 and his self-criticism and abasement to the person of Gorbachev (*San Francisco Examiner*, November 15, 1987, pp. A1, A20) recall the Soviet Union of the 1930s rather than the early 1920s. Moreover, the Soviet nation, its institutions, and its people have been shaped not only by the Bolshevik and Stalinist past but by more recent traumas and accomplishments. These have inscribed upon the society forms as resistant to change as those of the more distant past and quite consistent with them. As a whole, they entrench the priorities that have characterized the system since the 1930s.

⁵Ryavec, 1985, p. 186; see also Nove, 1977, pp. 1-3, and Rutland, 1985, p. 96.

IV. PRIORITY, DUALITY, AND STATE POWER

THE UNIDIMENSIONAL SUPERPOWER

That the Soviet Union is a world superpower is without question. Yet its claim to that rank is fairly limited. The society that began in 1917 with an ideological fervor and evangelism of remarkable intensity is now, 70 years later, largely discredited as a social model both in the industrial societies that were to be its natural habitat and the less-developed nations more akin to its own origins. In the general area of economic development—the area often and stridently proclaimed for catching up and surpassing the West—the Soviet Union has impressive accomplishments that it can cite in the rapid transformation of its principally peasant-agricultural economy to the heavy-industry-dominated economy of today. Yet that transformation was far from balanced economically and far from mature socially. The newest Soviet leader, upon assuming authority in 1985, inherited a sick economy within a troubled society. Gorbachev faced "problems of internal political, social, and economic decay. Alcoholism, corruption, deteriorating public health, a stagnant economy, nationalist unrest, and generally plummeting morale suggested to him an incipient domestic crisis of major proportions" (Becker, 1987b, p. 24). He was confronted with a society debilitated by "the abysmal state of the 'human factor' in production—the defeatism, indifference, corruption, drunkenness, and general indiscipline that permeated the labor force from factory benches to ministerial offices" (Becker, 1987a, p. 2). As one can readily understand, "These domestic problems had important foreign policy implications. Above all, Soviet leaders began to worry about the impact of declining growth and the technology gap on the USSR's future military strength, putting at risk Soviet status as a superpower" (CIA, 1987b, pp. 1–2).

Few in the West would select the representative market basket of Soviet society and the standard of living it sustains. Fewer still would pay the price the Soviets have paid to attain them. Both the product mix and the cost of achieving it are completely inconsistent with the macro-level choices characteristic of market-exchange economies. As a particularly pertinent observation, consumption as a share of GNP in the Soviet Union

has declined over the years . . . from 73 percent in 1928 to 64 percent in 1950 down to 55 percent in 1980. . . . The share of consumption . . . is lower in the Soviet Union than in most countries, typically by at least ten GNP points, which are taken up . . . by investment and defense. . . . [T]he Soviet citizen seems to be catching up with his Western counterpart very slowly, if at all (Ofer, 1987, pp. 1789-1790).

It is wholly appropriate and increasingly common to describe the Soviet Union as a unidimensional superpower, one with the foundation of its international influence based not upon any perception of its ideological or social superiority, or even upon such economic might as it certainly possesses, but upon the military force that economic might and social structure have been distorted to produce and sustain (Brzezinski, 1986b, p. 8; Hammer, 1986, p. 194; Hardt, 1979, p. 221; Holloway, 1980, p. 69; Luttwak, 1986, pp. 52-61; Rowen and Wolf, 1988, pp. 20-22). It is probably impossible to disentangle the reinforcing influences that have brought Soviet society and the economy to embody the characteristics they currently reveal. The society's Russian past bequeathed subservience to a highly centralized state hierarchy preoccupied with the requirements of national power. The society founded upon Marxism-Leninism originated in the crucible of war and revolution and has had its greatest successes in the centralized mobilization for, and conduct of, war. It is sufficient to note, in common with Carr, Holloway, Lewin, and others, that Soviet history and ideology have been inextricably commingled with military success to produce a "garrison state mentality that emphasises military power and gives [the Soviet] version of socialist progress a decidedly martial ring" (Rice, 1987, p. 209). "It was in the effort to build up military and military-industrial might that the defence of socialist gains and the creation of a powerful Russia were most intimately fused" (Holloway, 1982, p. 280; see Carr as cited in Holloway, 1982, p. 279; Lewin, 1974, p. 9). Indeed, the extraordinary Soviet emphasis on military production is one of the most prominent characteristics of Soviet society from the Stalinist era to the present. "After a sharp decline in the share of defense [in GNP] following Stalin's death, it resumed a monotonic climb from possibly less than 10 percent in the late 1950s to about 13 percent in 1970" with the current estimates for the mid-1980s being in the range of 15-17 percent (Ofer, 1987, p. 1787; CIA/DIA, 1988, pp. 31-33; these current estimates are considered conservative by some analysts).

The actual Soviet emphasis upon things militant and centralized was not inevitable. Marxist-Leninist ideology was seen as consistent with the more decentralized

mixed economy of Lenin's and Bukharin's NEP, at least for a time and through whatever mix of expediency and conviction. Military capacity received little attention during most of the NEP period as society attempted to recover from the crippling effects of war and revolution. However, it is debatable at the very least whether the decentralized market structure and Bukharin's version of persuasive socialism would have been sustained. Even without a Stalinist personality, the party's concern for power and control, the backwardness of the Soviet economy, and the increasing world tensions of the 1930s may have doomed the experiment with a more liberal form of socialism. Had the more liberal form prevailed, had the characteristic Soviet forms of centralized hierarchical control and nonmarket inducements not become so pervasively embedded, the resulting Soviet economic system would probably be more amenable than it is to analysis by Western economists' standard tools.

Reform and Defense Priority

These considerations are not merely idle counterfactual speculation. Gorbachev's calls for reform, for "openness" and "restructuring," his attempt to rehabilitate Bukharin, and several of the specific reforms he has proposed, make it easy—probably too easy—to envision NEP-like influences spreading through the Soviet system. For example, in the area of agriculture, Gorbachev has proposed reforms likened to the "food-products tax" that inaugurated the NEP itself (Hanson, 1987, p. 113). Soviet leaders do not make such references without purpose. The intent of Gorbachev's pronouncements and actions, in part, must be seen as the stimulation of some degree of liberalization within the economy and society. However, as Zaslavskaya's liberal critique of the present system notes with regard to previous attempts to reform the Soviet economy since World War II:

Essentially, what we have observed over the course of past decades was a number of attempts to inculcate in the present system individual progressive methods of management, and their subsequent rejection because they did not correspond to its spirit. . . . [I]t is impossible to improve the mechanism of economic management, arrived at many years ago, by gradually replacing the more outmoded of its elements with more effective ones. . . . [T]he discreet replacement of concrete systems of production relations . . . will come about rather infrequently, but for that it is a complex and deep matter.¹

¹Zaslavskaya, 1984, p. 100; see Ofer, 1987, p. 1821, for a consistent view.

Twice the Soviets have avoided such immune-system rejection by major transformations of their economic system, in 1921 and in 1928-29. But it is not clear that Gorbachev has the support for reform of a similar nature. Nonetheless, his view of the needed reform is consistent with Zaslavskaya's statement: He has "stressed the need for systemic reform—aimed at changing the basic operating procedures of the economy—rather than piecemeal changes grafted onto the old command system" (CIA, 1987b, p. 2). It is widely acknowledged both that the severe and pervasive shortcomings of the Soviet society cannot be satisfied through marginal resource reallocations or incidental modifications to the system, and that the substantial diversion of prime resources to the military is a considerable drag upon the economy (Becker, 1987b, pp. 24, 39-40).

The traditional priority of the military, which may have decreased over the last decade, may therefore continue to erode under Gorbachev. As we have seen, the priority afforded the Soviet defense-industrial sector, however measured, has not remained constant throughout Russian and Soviet history, and the relations between it and the general economy have been modified in important ways. Regarding the most recent era, Becker argues that several of the main dimensions of the accustomed priority accorded to the military and its particular economic base appear to have weakened since the mid-1970s (Becker, 1985, p. 36; 1986, pp. 49-52). Indeed, the most recent evidence and careful analyses suggest that the unsatisfactory performance of the Soviet state—and its European communist brethren—has generated substantial conflicts between at least the short-term interests of the Soviet political and military leaders, conflicts that have generally been resolved in favor of the political interests. As a result, Soviet military growth appears now to have been constrained to approximately 2-3 percent per year since the mid-1970s (Azrael, 1987, especially pp. 6-7; Becker, 1987b, especially p. 25, n. 2; CIA/DIA, 1988, especially p. 20). The ascendancy of political interests in these conflicts has led to the suggestion that the prolonged "golden age" of "near-absolute priority" for the Soviet military may be drawing to a close (Azrael, 1987, p. 5). In fact, Becker argues strongly that Gorbachev's words and actions indicate "his top priority was economic growth, followed by consumer welfare; the defense budget appeared a distant third" (Becker, 1987b, p. 30).

Ambiguous and Constrained Reform

Indeed, with the increasingly apparent unsatisfactory performance of Soviet society and economy, it would have been remarkable if the long sustained military priority had remained sacrosanct. However, as Becker develops in a fascinating and persuasive discussion (Becker, 1987b, especially pp. 33-37), the short-term conflict between Gorbachev's emphasis upon general economic development and the military's desire for increasing military outlays must be interpreted with care. The defense-industrial sector is not insulated from the deficiencies of the general Soviet economic system. Of those deficiencies, the relative inability to innovate, and even to adopt and diffuse, modern technology—particularly microelectronic information technology—is both systemic and among the most serious (CIA, 1987a, p. 13; Ofer, 1987, p. 1823). It is upon such microelectronic technology that the resurgence of Western military modernization has been built over the last decades, and the importance of overcoming their inferiority in this area has been clear to a number of Soviet military leaders. For example, Orgarkov "was known to be a strong believer in an imminent 'scientific-technological revolution in military affairs' . . . based upon 'new physical principles' . . . [but] his views implied an enormous increase in spending on military research and development, followed by massive and continuing outlays for procurement" (Azrael, 1987, p. 11; Becker, 1987b, p. 33). As Becker points out, Orgarkov's complaints regarding the state of modernization in the Soviet military had implications much broader and more complex than could be solved solely by infusions of still more rubles (Becker, 1987b, p. 21).

Yet, on fiscal grounds alone, the modernization requirements of the military could not be met in the short term without further jeopardizing even more fundamental values:

[T]he economy was beginning to stagnate. Unmet needs of consumption, investment, and defense could not be satisfied by marginal reallocations; and that failure was threatening the state's external position, the society's future, and the security of the regime's foundation (Becker, 1987b, pp. 39-40).

In this broader context, it was the Soviet economy and society generally that demanded immediate attention if the basic fabric of the nation was to be secured. Nonetheless, as Becker and others point out, the requirements for general economic development within the Soviet Union are, beyond the short term, fully consistent with the

needed modernization of the Soviet military; and contemporary military leaders other than Orgarkov recognize this, just as did his predecessors during the 1920s and 1930s:

In the matter of strengthening military-economic potential, it is difficult today to overestimate the party's concern for cardinal acceleration of scientific-technical progress. After all, the leading directions of scientific-technical progress—the further priority development of machinebuilding, particularly machine-tool building, robot technology, computer technology, instrument-making, and electronics—are simultaneously the basic catalysts of military technical progress. [And:]

The backbone, the load-bearing wall of our country's defense capability is the Soviet economy. [Therefore the program of] accelerated development, intensification, and increasing the efficiency of the economy objectively offers new potential for military building, too (Major General Yasyukov in 1985 and 1986; quoted in Becker, 1987b, p. 34).

Indeed, the characteristic priority of heavy investment over consumption is accentuated in the 12th Five Year Plan, which Gorbachev helped to shape. In the plan:

[M]achine-building, a bulwark of Soviet industrial and military power, is targeted for extraordinary growth. Production in those parts of the machine sector closely identified with military modernization is slated to grow about 1.5 times faster than machine-building as a whole. The computer industry and robotics are also high-priority items. This is perfectly in line with the military's investment agenda.²

Or, as Becker puts it more pointedly:

[I]n setting out to modernize Soviet industry by concentrating on the development of machinery and particularly its high technology branches, the Gorbachev regime is also creating the foundation for advanced military technology as well (Becker, 1987a, p. 8).

The modernization of the Soviet machine-building sector is consistent with emphasis upon either the civilian or the defense-industrial interests in the society, and even with a balanced approach to both. However, "Soviet priorities and the organization of the Soviet system are likely to ensure that the most rapid progress in information technologies will be in the military" (CIA, 1987a, p. 13). Of course, it is precisely those

²Rice, 1987, pp. 196–197; see also Hanson, 1987, pp. 106–107.

priorities and that organization that are under review in the Soviet Union, and at this point we do not know which mix the Soviets will pursue. The realized distribution over the next several years of the product from the modernizing machine-tool sector will provide a valuable insight into the actual priority position of the military within the Gorbachev reforms. Yet, even a continued relative emphasis upon civilian interests might leave observers with an ambiguous situation for some time. The defense-industrial sector may not be as fully modernized as the military leaders would wish, but it is substantially ahead of the civilian counterpart and appears capable of sustaining the military satisfactorily well into the next decade. As a recent intelligence community estimate states:

As a result of the large scale modernization in the defense industries in the 1970s, the sector has in place most of the equipment it needs to produce weapons systems scheduled for deployment through the early 1990s. Therefore, any investment foregone in weapons plants to supply tooling for civilian production could delay the introduction of future weapons programs, but would not likely slow current output (CIA/DIA, 1988, p. 33).

It is, of course, precisely with the next generation of weapons that many of the Soviet military leadership are concerned. Nonetheless, with a satisfactory extant defense-industrial base—at least to the political leadership and for the near term—and the compatible requirements for positive development of both the civilian and defense sectors over the longer term, the possible Gorbachev reordering of the traditional Soviet priority upon defense seems both less revolutionary and quite rational. And it may be, as Becker hypothesizes, that it has been seen so by important segments of the military leadership as well as by Gorbachev and his closest followers.

Shortages and bottlenecks, endemic in the civil sector, had spilled over to military production. Above all, the perennial problem of technical progress had become acute. Gorbachev's program would confront all of these issues. It is a plausible reading of the sparse evidence on military views but of the abundant evidence on Soviet difficulties to suggest that the Soviet high command could well have accepted a tradeoff of short term constraints on military production and procurement for increased longer term potential, especially in the quality dimensions (Becker, 1987b, p. 35; see also pp. 33, 37).

proposals constitute the "boldest attempt at a decentralization of economic decision making since Lenin's NEP policy of the early 1920s," they offer opportunity for wider enterprise autonomy and a partial dismantling of the Stalinist model; they "touch the heart of the planning and management mechanism" (CIA, 1987b, pp. 11, 12, 13).

However, one must be careful of allusions to the appealing image of the NEP market; it is likely that they suggest more than is sought by the Soviet leaders. As Hanson observes, in part quoting Gorbachev:

There is no evidence that Gorbachev and his speech-writers and decree-drafters [believe that movement toward market socialism is required]. . . . [T]here is no reference to the ending of centralised supply allocation or of the setting of obligatory enterprise targets in general. . . . [W]hat is under way is a streamlining of what would remain a hierarchical system. . . . [As Gorbachev has said:] "Not the market, not the anarchic forces of competition, but above all the plan must determine the basic features of development of the economy."³

There is, moreover, substantial reason from Soviet history to be wary of an alleged commitment to decentralization of economic decisionmaking. Zaslavskaya's unofficial "Novosibirsk Report" may represent only an early version of the reforms being discussed within the Soviet Union, but it provides a telling insight. The document does clearly advocate elimination of the central hierarchical command system and reliance upon "oblique" economic, as opposed to administrative, coordination methods. However, the author's commitment to reform is severely constrained. In a typical passage, the author urges the importance of the "spontaneous" behavior of the citizenry in the future development of the socialist economy. Zaslavskaya specifies two tasks that must be accomplished to bring this about.

The first lies in determining, from the point of view of public interests, the optimum sphere of individual behavior for workers in each field of their socio-economic activities which are not regulated "from above." The second task is indirectly to provide modes of socio-economic behavior for workers, in the sphere of choice left open to them, which are in line with public interests (Zaslavskaya, 1984, p. 94).

³Hanson, 1987, pp. 110-111; see also CIA, 1987b, p. 26.

Of such spontaneity are the dreams of *dirigistes* made. First one determines the interstices in which spontaneity is allowed to operate, and then one determines ways to shape the residual spontaneity. As much as Gorbachev's view of the market as "anarchy," Zaslavskaya's social engineering reveals the Soviet mistrust of the individual and distaste for the results of individuals' free interactions in the market. This is not fertile ground for the development of the decentralized decisionmaking characteristic of market-exchange economies. In particular, it is not a congenial or hopeful prescription for that which Gorbachev seems to seek through his restructuring: "the entrepreneurship, dynamism, creativity, and flexibility of the market economy in a more decentralized, but still centrally directed environment" (Ofer, 1987, p. 1822).

Gorbachev and Sergei Witte

As so stated, the objective seems oxymoronic. It calls to mind the "profound contradiction" that "foredoomed to failure" the economic reforms of Sergei Witte during the late Russian Empire of almost exactly a century ago. Witte may have realized the contradictions and sought the needed reforms, but his society would not accept them:

The freedoms of the Western model were incompatible with government initiative in the Russian tradition. . . . All Russians craved . . . the goods and services which western Europe offered . . . [but] they refused to change their ways, blind to the incompatibility between their mode of life and that which produced the goods and services (von Laue, 1969, p. 305).

The Soviet Union of the late twentieth century is greatly different from the Russian Empire of the late nineteenth century. But insofar as Gorbachev seeks productivity and dynamism comparable to that of a market-exchange economy while adhering to central control, party primacy, the plan, and a severely constrained conception of individual "spontaneity," his reforms face obstacles no less major than those of Witte.

By more contemporary evidence, if there are factors favoring Gorbachev's reform efforts, it is also true that "there are major dangers threatening the success of his program," that "development of the private sector is proceeding slowly," and that attempts to emulate in the civil sector the more effective forms of organization and operation characteristic of the defense-industrial sector "have not lived up to expectations" (CIA, 1987b, pp. 18-24, 17, 15). A more recent intelligence community appraisal indicates that

Gorbachev's ambitious program to create a modern, more dynamic Soviet economy ran into trouble in 1987. . . . Soviet GNP grew by less than 1 percent [during that year]—a rate reminiscent of the late Brezhnev period. . . . Our preliminary estimate is that [military] procurement grew by roughly 3 percent . . . consistent with the growth noted in the preceding few years. . . . The real loser in 1987 appeared to be the consumer who—now three years into Gorbachev's economic program—has seen almost no increase in his standard of living. . . . [P]er-capita consumption rose only slightly, . . . by 0.7 percent. . . . The 1988 production targets are totally unrealistic.

and Gorbachev has asked the Soviet "consumer to tighten his belt for a few years" to await the fruits of the new investment (CIA/DIA, 1988, pp. 1, 20–22, 30, 38).

Thus, the forceful currents of change within the Soviet Union are surrounded by conflicting evidence: Efforts that might alter basic operating procedures and policies are faced with powerful opposition and commingled with the persistence of traditional patterns and adverse cultural predilections. It is impossible now to distinguish what is ephemeral from what will last. To attempt that distinction would be to interpret history "while it is still smoking, . . . [while] everything is in the foreground and appears the same size. Little matters loom big, and great matters are sometimes missed because their outlines cannot be seen" (Tuchman, 1982, pp. 24–28). Although it is much too early to predict the lasting consequences that will emerge from the turmoil of reform in the Soviet Union, several authors, particularly Becker, have provided a valuable insight in revealing the "outline" of ambiguous potential embedded in the Soviet industrial reform.

That outline can be sharpened. Historical allusions have been made to the NEP period, and even to the industrialization effort of the late 1920s (Becker, 1987b, p. 39). But perhaps insights of at least equal utility can be gained by going further back in history, to the antecedents of the Soviet regime. Gorbachev's situation—the dilemmas and context he faces and the aspirations he holds—seems similar to that of Sergei Witte. Deficient social and economic performance, increasing domestic discontent, faltering international prominence, and a haste to catch up with more advanced Western nations are characteristics of both periods and their regimes.

Witte sought to secure the internal stability, national power, and international prestige of the Imperial Russian state. To do so, it was necessary to establish within Russia a modern economic base comparable to those that sustained Russia's great power competitors at the end of the nineteenth century. And to do that, it was necessary for the state both to divert resources from the traditional primary recipient, the Russian military,

and to foster an international climate making such diversion reasonably prudent. As we have seen, however, throughout his attempts to modernize the Russian economy—and despite his diversion of resources from the military—Witte remained fully conscious of both the importance of the military to a contemporary great power and of the central role military power had played in securing such status as Russia possessed. Then, as now, contemporary superpower status entailed a corresponding economic base capable of sustaining modern military power as well as the broader dimensions of society.

Gorbachev's view of the importance of the military to a major world power is unlikely to be greatly different from Witte's. With regard to Gorbachev's reform programs, Becker argues that economic reform and democratization "are derivative values" (Becker, 1987a, p. 1). Consequently, we may ask from what more fundamental values are these derived; what are the basic aspirations motivating the reform effort? As Gorbachev himself has stated, he holds the objective of ensuring that "the Soviet Union enters the millenium in a manner worthy of a great power" (Azrael, 1987, p. 43). Azrael provides further insight by suggesting that Gorbachev

seems to dread the specter of technological backwardness—not only, or even primarily, because of what it could imply for the East-West military balance but because of what it would imply for the Soviet Union's broader claim to superpower status and hence for the legitimacy of the Soviet system. At the same time, he seems almost as worried as his predecessors that a failure to satisfy the rising expectations of Soviet consumers could pose a clear and present political threat to the regime (Azrael, 1987, p. 41).

In this view, consumer satisfaction joins economic reform and democratization as derivative values subordinate to the primary objectives of maintaining the Soviet regime's domestic political security and the Soviet state's international superpower status. It is unlikely, in the hard choices facing the Soviet Union in the near future, that the Soviet leadership will sacrifice primary objectives for derivative values. As we have seen, priority attention to national power and the economic base to sustain it has been the central theme of Soviet practice since the inception of the regime. Military power, a necessary component in the claim to superpower status, "has been the primary instrument of the Soviet leadership in achieving national security, political leverage, and prestige throughout the world" (CIA, 1986, p. v; see also Brzezinski, 1986a, pp. 12–13). It is particularly doubtful that the Soviet leadership will allow this primary instrument to be fundamentally jeopardized through the search for a more broadly based claim to

superpower status. Gorbachev's appraisal of the essential role military power has played in the Soviet Union's present international position cannot be less clear than was Witte's regarding the late Empire.

Gorbachev has apparently increased his control over the military; has perhaps diverted the traditional priority claim of the military over prime Soviet resources, at least for the short term; has not been vocal regarding support for the military; and has certainly attempted reform actions that would further divert the defense-industrial sector's activity toward civilian production (Azrael, 1987; Becker, 1987b; CIA/DIA, 1988). But it is unlikely that Gorbachev, toward the end of the twentieth century, is any less aware of the dependence of successful economic modernization upon a period of international moderation than was Witte toward the end of the preceding century. It must be of some comfort to Gorbachev to realize, as he must, that successful economic modernization supports both the general welfare of the Soviet Union and the nation's traditional basis of international influence. As he strives for the former he will not knowingly risk the latter. Consequently, it will be useful to explore certain of the characteristics that have distinguished the defense-industrial foundation of Soviet power.

SECTORAL PRIORITY

It is inherent in the conception of a centrally administered economy that priorities exist and that, to the extent those priorities are satisfied, the resulting economic configuration will differ from that of a market-exchange economy. We are not concerned with the type of economic administration characteristic of the "indicative" planning efforts of certain Western European countries, which consist principally of government-provided guidelines for the voluntary actions of the economy's constituents. Equally, we are not concerned with the administration of plans of individual enterprises or those of voluntary associations by economic constituents. Our concern is with the administration of an economy that has become an arm of the state, centrally managed by a government bureaucracy devoted, at least formally, to the implementation of the system's directors' priorities, which are dominated by ideological and political objectives. It is the principal justification of such a system to pursue priorities differing from those that the unconstrained interaction of the subject economic constituents would reveal.

The use of priority specifications as a major instrument of economic policy has characterized the Soviet system since its inception, being the prominent means by which the Bolsheviks attempted to control the economy through both the war communism and NEP periods (Gregory and Stuart, 1986, p. 69) as well as from the outset of the Stalinist system. Priority setting, therefore, is not necessarily associated with the demands of war, or the preparation for war, or even with the needs of defense or the military. It is an inherent element of a centrally administered economy, which, setting aside the information-economizing and constituent-coordinating functions of the market, seeks to pursue objectives other than those of the constituents. Scarce resources, deficient information, and imperfect control—endemic conditions of a CAE—are the origins of the need for priority specifications and the administrative structure to pursue them, and are independent of the objectives specified.

In the CAE that emerged under Stalin—and that has been, in the main, perpetuated after him—both the priorities and the structure of economic organization were clear. "The growth of Soviet military power along with the growth of the economic foundations on which it rested were the prime goals of the economic system implanted on the USSR by Stalin" (Becker, 1985, p. 34). As we have seen, the policy of adapting the entire economy to the broad needs of national security and to those of the military in particular was proposed before the NEP was abandoned and implemented with the First Five-Year Plan. The defense-industrial sector, well established in the 1930s, has been the continuous recipient of priority treatment under the Soviet leadership, in sharp contrast to treatment accorded the general civilian economy. It has arguably developed into "the world's largest military-industrial base" (CIA, 1986, p. 1).

But the reforms of the past have not fundamentally changed the relative position and unique character of defense in the Soviet economy. It will be some time, if ever, before the present reforms substantially alter the basic structural and behavioral patterns that have established the priority position of defense interests in the Soviet economy, bureaucracy, and leadership-interests to this day. Accordingly, it remains true to say:

The military-favoring priority system . . . is one of the essential operating mechanisms of the Soviet economy. For example, military industry is supplied with scarce, high quality resources often unavailable to civilian industry; the pick of production in dual-line plants may be taken for military needs, leaving the inferior products for civil use; in the event of

shortages, military programs tend to be protected, leaving civil activities to cope as they can.⁴

PERMEATION

Cooper and Holloway are correct when they object to certain "western writings on the Soviet defence industry [that] have tended to portray it as a separate, distinct sector walled off from the civilian economy" (Cooper, 1986a, p. 47, as quoted; see also Cooper, 1986b, p. 221; Holloway, 1982, pp. 350-353). The Soviet defense-industrial sector has certainly been favored by a clear and high priority that has shaped, and is reflected in, the administrative apparatus, decisionmaking structure and authority, managerial practices and access to resources. But it remains embedded in the general economy, sharing many of the same inefficiencies of organization and incentives, and should not be viewed as an enclave, isolated and without complex and extensive interactions with the larger whole.

Indeed, the economic base of the Soviet defense system was not conceived or designed to be such an enclave. From the 1920s, the policy of adapting the general economy to the needs of defense explicitly entailed extensive two-way interactions, with substantial emphasis upon the defense industries producing civilian products and civilian industries both supplying the defense sector with inputs and being capable of rapid adaptation to specifically military production. Cooper has recently indicated the substantial extent to which the defense industries contribute to civilian production in the present day, and Brezhnev laid clear—yet ambiguous—emphasis upon it (Cooper, 1986a, pp. 34-39; see also CIA, 1986, p. 3; Holloway, 1982, p. 309). Nor have the military's traditional contributions to the civil economy been limited to industrial production. Military and paramilitary organizations in the Soviet Union have long undertaken activities in the civil sector ranging from agricultural to educational (or indoctrinational) reflecting both the military's superior resource and organizational capabilities and the priority of national security concerns within Soviet society (Marshall, 1975, pp. 160-162; Holloway, 1980, p. 81).

Further, the role of the defense sector as a contributor to, and modernizing influence upon, the general economy may increase if the Gorbachev reforms are effective. Soviet leaders have long held the defense-industrial sector as a model for the civil economy to emulate in managerial practices, technological levels, and production

⁴Becker, 1985, pp. 20-21; see also, for a stronger statement, CIA, 1986, pp. 1-3; also Holloway, 1982, pp. 286-313; Nove, 1977, p. 171.

responsibility (CIA, 1986, p. 3; Cooper, 1986a, pp. 34, 48). It now appears likely that the Gorbachev reforms themselves have important elements drawn from the administrative structure and practice of the defense-industrial sector. The new Bureau of Machine Building appears to have the coordinating responsibilities, and possibly something approximating the authority, of the Military-Industrial Commission. The recently created network of inspectors subordinate to the State Committee for Standards appears to have a quality-control responsibility and authority within civilian industry possibly comparable to that of the military representatives within the defense-production organizations (CIA, 1986, p. 12, fn.3; Cooper, 1986b, p. 225). If, as Cooper believes, the Gorbachev reforms confine substantial introduction of market-based relations to the sectors of consumer goods and services (Cooper, 1986b, pp. 224-225), the distinctiveness with which the defense-industrial sector operates and is organized may change in ways not entailing increased homogeneity between the sectors.

But the extent, nature, and effects of the new reforms are not now known, and much of it has been heard before, although seldom from such a young and vigorous leader. Whatever the eventual influence of these reforms, they are just now being implemented and do not affect the existing characteristic relationships that have held between the defense-industrial sector and the general economy of the Soviet Union for the preceding portion of this century. To the extent that they are substantially successful in altering the fundamental relationships that define the priority of defense within the Soviet system, forecasts based upon parameters drawn from the pre-Gorbachev era will be more difficult. That is a problem to be faced when its relevancy becomes clear.

For the present, it remains accurate to state:

The peculiarity of the defence industry is that it is both an integral part of the Soviet industry, sharing many of its general features, and the highest priority sector of the Soviet economy with special features of its own: . . . high priority in investment, . . . the best machinery and instruments, . . . salaries and wages are higher, . . . more benefits [hence] workers and managers . . . are . . . more highly skilled and more competent . . . also in administrative arrangement . . . the power to commandeer what it wants from civilian industry. . . . [I]n an economy where supply problems are chronic this has been an advantage of great significance. . . . The priority system has operated now for more than forty years, and its cumulative effect on the defence industry is likely to have been considerable . . . [for example, it] is now embedded not merely in the system of economic planning and administration, but also in the attitudes of the workers and management to military production. . . . It appears also to reflect the

planning and administration, but also in the attitudes of the workers and management to military production. . . . It appears also to reflect the general importance given in the society to military power. The development and production of weapons are seen as fulfilling an important national purpose and as contributing to Soviet greatness (Holloway, 1982, pp. 311-312).

It is consistent to hold both that defense-industrial activities permeate the Soviet economy and influence it substantially and that the defense-industrial sector possesses important distinguishing features causing it to function with distinctive superiority relative to the general economy. Indeed, the prevalent practice of Soviet leaders in holding the defense sector as an object of emulation for the civilian economy is convincing evidence, in itself, that the two are functionally distinct. It would seem, therefore, to be of critical importance to capture such distinction in any modeling effort concerned with the defense industry of the Soviet Union and its relation to and effects upon the general economy.

DUALITY

General

This Note has argued that the Soviet defense-industrial sector both permeates the general economy and simultaneously possesses important characteristics causing it to be functionally distinct from the general economy. Accordingly, the concept of economic dualism, which has proven fruitful in the area of economic development (Meier, 1976, pp. 125-165), suggests an appropriate alternative approach to modeling the Soviet system. In his original formulation of the dual-society concept, Boeke specified the simultaneous existence of two (or more) social systems—each possessing a distinctive "social spirit," organizational form, and technique—as the basic definition of a dual (or plural) society (Boeke, 1953, p. 3). The traditional and unique priority that the Soviet leadership consistently has accorded to defense-industrial interests and is "imbedded at all levels of the economic hierarchy . . . [safeguarding] the priority of military production" (Becker, 1986, p. 19; see also, Holloway, 1982, pp. 311-312), can be seen as the essential counterpart of Boeke's social spirit distinguishing the defense-industrial sector from its containing economic system. Indeed, in the Soviet Union the priority accorded to national-security interests is both broader in conception than strictly "military" and more broadly held than in the economic hierarchy alone. In

"organizational form" and in "technique," the defense-industrial interests are distinguished from the general economy.

The ensuing emphasis on "dualism" does not introduce a conception that applies only to the Soviet era of Russian history. If the development to follow draws from the Soviet experience, it could, with equal reason if with less documentary evidence, be based upon the preceding three hundred years of experience by the Russian people who have populated the region now known as the Soviet Union. "The government, from Peter to Witte in the 1890s, had to build separate sectors of defense-related industries. . . . [T]he government created special sectors to produce war commodities" (Hellie, 1977, p. 10). What follows merely sketches the most modern manifestations of a constant of at least three centuries' duration, debatable only for the period of turmoil from the time of Witte to the First Five-Year Plan.

Administrative

Just as the organizational form of a CAE economy entails the existence of characteristic centrally held priorities, so also does the priority system entail an administrative apparatus specifically designed to promote those priorities. As Becker states regarding the Soviet Union,

Institutional arrangements are vital for the successful operation of priority. Gosplan and Gossnab act to protect military priorities in the supply of inputs, but there is also a high level organization that oversees military development programs, the VPK (Military-Industrial Commission). The VPK regulates the development process from the stage of applied research to that of preparation for factory production; it assures schedules, quality, and quantity (Becker, 1986, p. 20).

Indeed, the CIA, while agreeing with the functions of the VPK as described above, extends them even further to include the coordination and control of actual production activities and the orchestration of "defense industrial acquisition and assimilation of foreign technologies" (CIA, 1986, p. 11). The priority accorded to defense-industrial activities in the Soviet administrative structure is not confined to the economic ministries closely identified with defense production specifically. Rather, it extends into the civil sector where military-related production is carried out. "Gosplan . . . has a distinct defence industry department . . . specifically concerned with the activities of the [defense-economic] . . . ministries, plus the military production

undertaken by civilian ministries" (Cooper, 1986a, pp. 31-32). As a statement of the administrative priority accorded to defense needs, the following is particularly telling:

Weapon programs are authorized by a joint decree of the Central Committee and Council of Ministers. . . . The decree . . . has no direct counterpart in terms of authority in the United States, but has the effect of combining in one decision the [U.S.] Department of Defense approval of a program, a presidential decision authorizing top priority, and multiyear funding of the program by Congress (CIA, 1986, p. 15).

Not only is there no U.S. counterpart of such priority, there has been no counterpart within the civilian economic sector of the Soviet Union (Becker, 1981, p. 55). Even the interagency commissions devoted to priority civil sector projects, which have emerged over the last decade, appear to be merely consultative and without any semblance of the authority of the VPK (Becker, 1986, pp. 20-23). As noted above, the uniqueness of the priority accorded to defense by the central leadership and through the administrative structure may be reduced by the most recent Gorbachev reforms and restructuring. Nonetheless, that uniqueness has without question been "an intrinsic part of the system of economic planning and administration" (Holloway, 1980, p. 85) characteristic of the post-World War II period up to the recent past, if not to the very present.

Accentuating the administrative priority of defense interests is the role played by explicitly military organizations within the administrative structure. The military—in the form of the Ministry of Defense, the General Staff, and the military representative system—exercises a "consumer sovereignty" absolutely foreign to the Soviet consumer. Spurred by the military competition with the West, the Soviet military organizations "draw up requirements, issue specifications, supervise weapons development, conduct trials and exercise quality control during production" (Holloway, 1980, pp. 76-77; Holloway, 1982, pp. 350-353; Weickhardt, 1986, pp. 196-197). The military representatives, carrying the plenipotentiary authority of the Ministry of Defense into the enterprises engaged in defense-related production, execute a critical and unique function in behalf of defense interests. Specifically, through the representatives,

a vast amount of industrial data flows between the Defense Ministry and the defense industries—giving the military a clear advantage over non-defense ministries in the competition for scarce resources. Bridging the gap between customer and producer, the military representatives create in the defense industries a responsiveness that is often lacking in the nonmilitary sector. . . . This direct association of consumer with industry provides the quality control and feedback lacking in the civilian economy and is a principal reason for the better performance of Soviet defense industries (CIA, 1986, pp. 11–12).

As Alec Nove has said, regarding the Soviet defense-industrial sector, "here at least the customer is always right" (Nove, 1977, p. 171).

Therefore, within the general administrative structure of the Soviet economy there is another, distinctive "organizational form" that exists to implement and, indeed, to enhance the central priority favoring defense-industrial interests relative to the general economy. Stretching downward from the highest organs of the state, a dedicated administrative apparatus expresses the priority of defense and transmits the extraordinary decisionmaking authority that is confined to defense programs. Through that dedicated apparatus, economic information flows and coordination occurs between the military consumer and the producers of defense goods—and among these latter—in a fairly effective manner uncharacteristic of the Soviet civilian sector. In addition, the Soviet defense-industrial producers are subjected to foreign "competitive" pressure in the East-West military competition (Nove, 1977, p. 171) and to domestic "consumer" pressure from their own military authorities. Both influences, without parallel in the Soviet civilian economy, may be seen as imperfect counterparts of the market forces that induce efficiency in a market-exchange economy.

Technological

It would be surprising if the administrative priority accorded to defense interests by the Soviet leadership—with such clarity and duration—was not manifested in numerous distinctions between the defense sector of the economy and the general economy in which it is embedded. Many such distinctions have been suggested and are being examined—resource priority, managerial practices, incentives, work discipline, and technology, for example. Berliner has made perhaps the most prominent case for associating the top priority accorded to the defense-related sectors—specifically military and space activities—with the superiority of technological (and other) innovation processes in the defense sector relative to the general economy (Berliner, 1976,

pp. 505-510). Berliner's distinction between "mission-oriented" activity, which he sees as characteristic of the priority sector, and the "economic activity" of the general economy is considered overdrawn by some analysts (Holloway, 1980, pp. 71-73; 1982, p. 353). Nonetheless, most acknowledge that the innovative process and technological level characteristic of the defense-industrial sector are superior to those of the civil economy based upon identifiable differences between their research-production processes.

The extent to which the Soviet defense-production sector is superior to comparable activities in the Soviet civil sector is unclear, and the metrics of comparison are not agreed. One of the principal conclusions of the CIA's 1976 revision of the Soviet defense burden estimate, "that Soviet defense industries are far less efficient than formerly believed," is not very helpful (CIA, 1976, p. 16). Both the assertion and the provided text reveal nothing of the standards of measurement employed and leave open the possibility of an actual and substantial "efficiency" differential that favors the defense-industrial sector.

As a general statement, most analysts agree that

there is no evidence that the USSR has succeeded in closing the technology gap [relative to the industrialized West] it inherited from its Tsarist predecessors. *The sole exception to this judgment is military technology, an area where the technology gap has indeed been narrowed (or even eliminated).* . . . [With that exception] expert studies of Soviet technology . . . conclude that the past two decades have not witnessed a noticeable reduction in the USSR's technological backwardness (Gregory and Stuart, 1986, p. 423 emphasis added).

SUMMARY

Boeke's three-fold characterization of the dual economy or society seems usefully suggestive for attempts to model the Soviet economy. Throughout Soviet history, the dominant objective of development to match or exceed the industrialized West has found actual expression in fulfilling the economic requirements of national power, with highest priority most obviously accorded to the particular dimension of military power and its associated economic base.

From time immemorial, Russian society expressed itself politically through a state that was mobilized and regimented along military lines, with the security dimension serving as the central organizing impulse (Brzezinski, 1986a, p. 17).

To whatever extent this realized expression of leadership priority is supported by the general Soviet population, the resultant "militarization" of Soviet society represents a "social spirit," which has shaped the administrative structure and decisionmaking apparatus in ways that distinctively favor defense-economic interests. The particular manifestations of this favor are manifold and complexly interactive, but most point clearly to the conclusion that defense-related economic activities—particularly but not exclusively those of the defense ministries—should be represented by Western modelers, as they are acknowledged by Soviet officials, to be functionally distinct from their civil sector counterparts.

As a minimum, this would suggest the representation of defense-industrial activity as a distinctive sector of the economy. The priority access to resources afforded the defense sector, and the greater emphasis placed upon coordination of economic activity within it, suggest that resources flow both into it and within it with greater efficiency than they flow to and within the civil sector. Moreover, the general level of quality of the resources within the defense-industrial sector—human, technological, materiel, and organizational—is superior to that of the civilian sector. Although the Soviet defense-industrial sector has complex and important interactions with the civil sector and should not be represented as an isolated "enclave," the integrated resource flows representative of a generic Western market-exchange economy provide a misleading approximation of the dual nature of the Soviet economic system.

What, beyond that, can be said? There is little question that the Soviet defense-industrial sector is capable of accomplishments which, by international standards of comparison, exceed those exhibited by the civil sector. By such standards, the Soviet achievements in defense and in space are seen, on balance, as matching those of the United States, a country in general indisputably larger economically and more advanced technologically than the Soviet Union. Outside of the defense and space activities, however, there are few instances where the Soviet economy can be seen as matching the comparable economic activities of the United States. The traditional priority accorded to Soviet defense-related activities in the full range of resources accorded to them has clearly wrought a difference in capability between the Soviet defense and civil sectors, to

the benefit of the former. One is tempted to argue that such priority has shaped the production possibility frontier in a biased manner, extending the feasible combinations open to the defense sector and probably reducing those open to the civil sector. But has such priority produced a defense-industrial sector that is in fact more efficient than its civil counterpart?

On the basis of superior resources, more reliable resource flows to and within the defense-industrial sector, and the generally higher quality of output from the sector, it is tempting to argue that the defense-industrial sector is more efficient as a whole—exhibits a higher factor productivity—than is the case for the Soviet civil sector. However, such a position has not been conclusively demonstrated. Indeed, preliminary models of a Soviet-like economy (incorporating new concepts consistent with the terms "duality," "priority," and "permeation" as they are used in this paper) indicate a conflicting conclusion. Specifically, "factor productivity is lower in priority sectors, perhaps due to flexibility considerations" (Ericson, 1988, p. 23). As a general statement, this conclusion follows from the fact that "priority coupled with [permeation] imposes excessive capital costs on the economy both through excess capacity and the costs of [joint] purpose, flexible technologies and organizational forms" (Ericson, 1988, p. 6). Ericson's references to "flexibility" and to "flexible technologies and organizational forms" relate directly to the phenomenon, present since the First Five-Year Plan, of shaping the Soviet "civil" economy to support the needs of defense production. However, the shaping of the economy need not be a one-way process of imposing nonoptimal forms upon the civil sector. Examples of Soviet military hardware indicate standardized production techniques not specialized to military ends, which would facilitate shifts of production lines from military to civilian goods.

Nonetheless, Ericson's point is a strong one. Insofar as the strategic needs of defense and defense production are pursued, in part, by modifying the structure of the civilian economy from those forms specialized to civilian needs, the real factor cost that must be attributed to the defense goods produced will be increased (factor productivity lowered in defense production).

Since the late 1920s, the Soviet system has been shaped by a war economy doctrine, which, although it has not been constant in its particular interpretations, has consistently resulted in the general economy's being "shaped" to support the needs of the military and society for, during, and after war. Before World War II, the main

manifestations of this doctrine were the location and duplication of productive capacity far from the traditional routes of invasion and the configuration of civilian capacity for rapid adaptation to military production. In the nuclear era, those same principles have been supplemented by territorial dispersion of production; the standardization of much civilian hardware production to consistency with military criteria; underground, hardened, or otherwise "survivable" construction; and specially configured infrastructure. In implementing technical and industrial configurations within the civil sector that serve military purposes rather than optimizing civilian capacity for civilian objectives, therefore, the Soviet regime has imposed "paramilitary" costs, which must be added to the traditional and more readily identifiable costs of producing and sustaining military power. Indeed, these paramilitary costs reasonably may be seen as substantial contributors to the inefficiency of the civilian economy (Checinski, 1984, p. 42).

We must also appropriately specify the corresponding output. Just what is it that the Soviets view themselves as producing when they shape the economy to support defense interests? It is misleading to conceive of that output as the actual current production of defense goods or even as the actual total stock of defense capital, infrastructure, and expendables accumulated over time. Despite the increased emphasis upon extant capability in Soviet military doctrine in the nuclear age, an explicit portion of the product sought through shaping the economy includes the capacities to "surge" in defense production, to shift civilian capacity into defense production, to relocate productive resources to secure locations, to survive attacks upon those resources, and to recover defense and civilian production with them after attack. The capability to produce a "potential" production—indeed, to attain a potential structure of the economy—is a portion of the product sought and achieved through the extra costs of shaping into the economy flexibility designed to support potential national defense needs. The Soviets know the benefits of such flexibility from World War II. It is likely to be an element inherent and explicit in the directors' conception of national security. If this broader conception of output seems even less amenable to measurement than the joint costs it entails, it at least keeps open the question of the relative efficiency of the civil and defense sectors of the Soviet economy.

In citing the "Yerkes-Dodson Law" relating work quality to stress, Leibenstein suggests a relationship with potential bearing upon the relative efficiency issue. Briefly stated, the law indicates that as stress increases upon workers, the efficiency of their

work first increases, reaches a maximum, and then decreases as the elements of stress interfere with work performance (Leibenstein, 1986, p. 5; 1987, pp. 18-20). Few would argue that the level of stress upon workers in the civilian sector of the Soviet economy has resulted in a high level of efficiency. Fewer still would argue that the level of stress is so high that the civil sector experiences the inverse portion of the stress-efficiency relationship. Yet it does seem reasonable that the effects of the "consumer sovereignty" and "international competition" exerted upon the Soviet defense-industrial sector result in a higher level of stress within that sector than within the civil-specific economy, to the extent that they are separable. The argument supports a positive efficiency differential favoring the defense-industrial sector.

Practical efforts to more accurately model the Soviet economy are not much assisted by suggestions—such as that concerning the broader conception of defense activities, above—to add to the objective function arguments that may be unmeasurable with great precision. Nonetheless, the suggestion is consistent with a theme of this Note: The most common and "easy" concepts employed in modeling the Soviet economy may be insufficient to their purpose. In particular, we require a much broader and more complex conception when we attempt to specify the objectives sought in the Soviets' administration of their economic system. These additional objectives include, but are not limited to, a conception of national defense or security that is intrinsically tied to the configuration of the national economy.

OBJECTIVES: THE RACE NOT RUN

"The fleetness of a nation should not be judged from the races in which it has chosen not to run" (Berliner, 1976, p. 509). No matter what combination of influences have shaped the Soviet nation, seventy years of history confirm that the decisions made and the goals realized have not favored the standard of living of the population in the traditional Western sense of "consumption." To put the point perhaps somewhat too starkly, it is as if the concern of the Soviet leadership has been, with substantial consistency, "not to let the growth of the standard of living drop below the productivity and stability threshold" (Hohmann, 1986, p. 46), which is consistent with the maximization of some other set of objectives quite different from consumption.

In the Soviet Union,

the Party's ideological objectives have priority over such economic criteria as social welfare [and] in fact, economic policy . . . is likely to be merely instrumental to other goals—maintaining domestic power, extending the country's military power and global influence, spreading ideology, and so forth—that form the ultimate policy objectives (Moore, 1987, pp. 193, 205).

This broad, distinctive, and complexly interactive conception of the maximand characterizing the effective objectives of the Soviet society—or more surely its leadership—takes one far beyond the traditionally military activities to which most analysts confine themselves when concerned with the extent or burden of Soviet defense activities (Becker, 1985, p. 19). It raises, as Wolf points out, all "the familiar and intractable theoretical problems of joint products and joint costs." Nonetheless, his initial examination of the costs of the Soviet empire—"one of the highest priority claimants on [Soviet] scarce resources, perhaps only second to the top priority claim represented by the demands of the Soviet military,"—represents a critical step in an adequate specification of an appropriate maximand for modelers of the Soviet economy (Wolf, 1985, pp. 1000, 1002; see also Wolf in Hildebrandt, 1985, pp. 141–148).

The point that consumption is an inappropriate maximand for the description or analysis of the Soviet economy is sufficiently clear that it would not warrant particular emphasis were it not the fact that one of the models examined at The RAND Corporation conference contains consumption in precisely that role. The very purpose of establishing a CAE is to avoid the consequences of market interaction and the institution of the market-exchange economy tends to maximize consumption. From the earliest days of the Bolshevik regime, it was the Soviet leadership's

first priority—and one which remains of central importance to them—to effect a structural change in the economic system to bring economic power securely into their hands (Rutland, 1985, p. 104).

That power was, and is, exercised to promote the priority objectives of the leadership. Those objectives might well include the consumption interests of the population, for indeed the material welfare of the Soviet population has risen substantially under the Soviet regime. The economy has been transformed, but it has not been transformed into a "consumption" society like those of the market-based Western nations. In the Soviet Union the emphasis on consumption appears to have been in the

form of consumption-in-the-future, consumption after state objectives have been promoted—after the heavy industrial development base has been laid down, after the nation's security has been assured against threats internal and external, after the foreign empire has been secured, after the party's primacy is established, after the nation's international stature has achieved primacy.

The imposed sacrifices in consumption have been consistently justified by the promise of abundance in the future and have been viewed as an example of a prudent and farsighted strategy to which many other countries were not equal. . . . In 60 years, consumption levels . . . have not become a high priority goal. . . . Thus some other, competing, shorter-term goals were placed higher up in the objective function of the system. Much earlier the Soviet leadership satisfied its goal of becoming a world power, militarily and politically, and of projecting this power far beyond its borders. Internally, the leadership secured its power and hold over the country so as to become one of the most stable regimes on earth. *Revealed preference demonstrates that the above "composite good" was a goal in itself* (Ofer, 1987, pp. 1799–1800, emphasis added).

The institutions of a CAE are structured against the maximization of consumption. Consumption oriented reforms, such as those under Khrushchev and facing Gorbachev, are challenged by the inherent rigidity of an administrative hierarchy designed for other purposes.

[The] exclusion of the consumer is an intrinsic feature of the building of an economy around the planners' priorities, since these will not necessarily be the same as those which would emerge from a free market of consumers. The very structure of the economy which . . . emerged—both in terms of organizational relationships and economic sectors—was biased against a consumer orientation, so much so that when planners decided to steer the economy more in a consumer direction they found it to be very sluggish in response to their controls. . . . [Those efforts to reorient controls produced a] remarkably weak . . . impact on the functioning of the [Soviet] economy (Rutland, 1985, pp. 138, 96).

As Ofer moderately concludes, "the best judgment may be that the welfare of the population takes an intermediate position, being both a constraint and a weak competitor in a crowded objective function" (Ofer, 1987, p. 1800).

Consequently, for analyses that employ maximization or optimization techniques, the Soviet society's priorities are to be found, as indicated by both history and the logic of the system's institutional structure, in the objectives of the state, which include the private consumption of the population only as a second-order consideration.

V. CONCLUSION: THE POLITICAL ECONOMY OF THE SOVIET UNION

With the exception of the brief interregnum of the New Economic Policy, Soviet economic history portrays a consistent record of the state's attempt to avoid the economic process and results of market interaction through the creation and operation of an extensive centrally administered economic system. The foregoing pages have emphasized objectives and structural characteristics that describe and are revealed by that system. This emphasis has its rationale in the attempt to illuminate certain specific areas in which the major Western economic models of the Soviet Union inadequately represent Soviet economic reality through examples of "mirror imaging." But the broadest charge of mirror imaging remains to be made. That charge, which will be only briefly outlined in conclusion, suggests a substantially different approach—perhaps "a genuine shift in paradigm" (Buchanan, 1985, p. 25)—to the analysis of what is termed the Soviet "economic" system.

Within the Soviet Union, the Communist Party is:

the engine that drives Soviet society. The party leadership . . . fears spontaneity and leaves nothing to chance. Thus, the society must be controlled and the economy planned under the leadership and the inspiration of the party.¹

Although the foregoing statement may be extreme, if only because much is necessarily left to chance in any system, it emphasizes the dominating and pervasive influence of the party in Soviet life. That influence is authoritarian, with little or no civilian participation in the political process. The party's power is exercised through a vast, dual, bureaucratic structure reaching from the pinnacle of the system directors' Politburo, through party and state organizations populated and led by the *nomenklatura*, to the soviets of the individuals' workplaces. From the beginning of the planning period,

¹Hammer, 1986. p. 74; see also Brzezinski, 1986a, pp. 13-14.

the party became dominated by a centralized, hierarchical structure, a counterpart in many ways to the 'command economy,' avid to control. . . . Factors that prompted the system to view market categories and other expressions of spontaneity in economic life as pernicious contributed also to the opinion that any autonomy was a possible source of opposition and heterogeneity in politics. . . . [Indeed,] the difficulties the economy has encountered . . . are rooted to a large degree in the same general realm of politics that has been accountable for much of the lethargy and backwardness in state and party, . . . the same excessively etatized and centralized patterns with their heavy and inflexible administrative machineries.²

Thus, the political and economic structures of the Soviet Union possess the same distinguishing features—central authority, administrative hierarchy, and bureaucracy—and the forms in which they are made manifest have not changed despite the reform efforts that have taken place before Gorbachev (Lewin, 1974, p. 344; Nove, 1977, pp. 1–3; Rutland, 1985, p. 96). The insight this commonality suggests is that the Soviet economy

represents the triumph of politics over economics, in that the dominant characteristic is the intrusion of strong political priorities into the economic arena, and the deployment of politico-administrative methods to achieve these goals. . . . [It] is essential to analyze the [Soviet] economy as a political phenomenon (Rutland, 1985, pp. 94, 259).

In a supportive and particularly apt combination of the universalist and institutionalist views discussed earlier, Rutland's point can be made with more precise emphasis:

A valid core of economic theory exists and is applicable to *all* economic systems and countries. There is *not* one special economic theory for capitalism and another for communism, although significant differences exist in the institutions and legal frameworks to which the theory is applied. . . . [I]f we [are] to devote primary attention to socialist systems, we [should] investigate much more fully political exchange, political decision making, and political competition (Alchian and Allen, 1969, pp. 11–12).

On a fundamental analytic level, it may be inappropriate to distinguish between political and economic institutions within the Soviet Union. Of course, the Politburo and

²Lewin, 1974, pp. 113, 341; see also Shlapentokh, 1987, p. 129.

Gosplan are distinct, identifiable institutions. But does the Politburo function and arrive at decisions in some distinctly different manner than does Gosplan? Do the effects of their separate decisions work themselves out through the society differently? Do individual Soviet citizens react differently to the manifestations of these decisions based on the designation of one as "political" and the other as "economic"? Because the institutional forms in which the manifestations are presented to the individuals are common, there is no basis for presuming differential behavioral patterns.

Indeed, the general Soviet institutional forms of authority, hierarchy, and bureaucracy are essentially noneconomic forms. They exist to embody and convey force, to exercise coercion, to impose a particular order, to regulate. They institutionalize "the concept and practice of the subordination of the individual to the state" (Brzezinski, 1986a, p. 13). They therefore represent the opposite of what we know as "economics" from market-exchange economies, the opposite of:

the principle of spontaneous order, or spontaneous coordination, which is . . . perhaps the only real 'principle' in economic theory . . . [that properly addresses] all processes of voluntary agreement among persons (Buchanan, 1985, p. 20).

The characteristic Soviet institutional forms are essentially political, involving "the whole realm of non-voluntary relationships among persons, those relationships involving power or coercion" (Buchanan, 1985, p. 21).

And yet, the theory of public choice, as one dimension of the new institutional economics, has as perhaps its most salient feature the extension of certain economic principles to the analysis of such nonmarket institutions as the political arena. The main principle so extended is that of *Homo oeconomicus*. People do not behave in fundamentally different ways in different institutional environments. The manifestations of their behavior do vary with the environment in ways that can be determined through specification of the incentive structure embedded in the institutional environment.

Zaslavskaya's "liberal" critique of the present Soviet economic system emphasizes the importance of institutional determinants in shaping behavior. In her terms:

[E]very system of production relations forms a particular social type of economic activity, which corresponds to its essence, and first and foremost a specific type of worker. The features of this type of person are determined . . . by firmly adopted norms of behavior in the spheres of

production, distribution, exchange and consumption. . . . The character of behavior is contingent upon opportunities and depends not only on the type of worker, but also on the other circumstances in which he finds himself at a given moment" (Zaslavskaya 1984, p. 105).

Zaslavskaya views the "passive type of worker" shaped by the Soviet system not as an ephemeral result, but as the deep-rooted historical effect of the centralized and hierarchical administrative system imposed since the 1930s (Zaslavskaya, 1984, p. 105; also pp. 89-91, 99).

The new institutional economics has many insights to offer the analysis of the Soviet "economic" system through its analyses of the non-market institutions of market-exchange economies. The investigations of the internal operation of the firm as a nonmarket institution (Leibenstein, 1986, 1987; Williamson, 1975, 1985) have clear relevance to the Soviet system in their analyses of hierarchy as a systemic source of inefficiency. Leibenstein's controversial arguments for the relaxation of the maximization postulate in favor of "noncalculating" behavioral postulates are particularly pertinent: response to commands or regulations, ideological imperatives, standard operating procedures, and nonresponsive "actions" (Leibenstein, 1986, pp. 3-16, *passim*; 1987, pp. 14, 22, *passim*) are endemic to the Soviet system. Whatever many Soviet individuals may be maximizing, the encapsulating statement often attributed to Soviet laborers, "they pretend to pay us, we pretend to work," suggests strongly that it is not economic value in the sense understood within a market-exchange economy. Shlapentokh, in his discussion of Soviet sociologists' investigation of the "sociology of work," reports the identification of an increasing number of "bad" Soviet workers who have

apparently developed such negative attitudes toward work that they seek to minimize their contributions and often consider other activities (in the second economy, for example) as the primary source of income (Shlapentokh, 1987, p. 159).

The investigator familiar with the extension of *Homo oeconomicus* into nonmarket institutions, with the problems of bonding agents to principals and with Leibenstein's noncalculating behavior, will have little difficulty understanding the Soviet "bad" laborers' preference for activity within the second economy.

Consider, also, Shlapentokh's portrayal of decisionmaking behavior within a strongly centralized Soviet hierarchy:

The decisionmaking process in a strongly centralized system is greatly affected by the fact that the supreme leader cannot make decisions on detailed matters and is compelled . . . to delegate authority to the next level of the hierarchy. Of course, the process of delegation will then be repeated at this level, and so on down the ladder. . . . Under these conditions, a peculiar phenomenon begins to play an important role in the functioning of the bureaucracy: Insofar as superiors have delegated authority, it becomes necessary for each functionary to guess the intentions and wishes of his or her superior. If one attempts to seek the opinion of one's superior every time a decision has to be made, one will soon be considered incompetent at handling the authority so delegated [sic]. Yet if a functionary makes an inappropriate decision and violates the intentions of the superior, that person will also be considered incompetent. . . . This approach to decisionmaking can be termed the "trial and error" method, . . . [which] reached incredible proportions under Stalin, but continues to be an important part of political life in the post-Stalin era (Shlapentokh, 1987, pp. 114-115).

It is reasonable to see nothing particularly "peculiar" in the foregoing description of decisionmaking in the Soviet Union. A similar "trial and error" methodology undoubtedly influences decisions within Western bureaucracies and, indeed, within the superior-subordinate relationships of Western firms. The methodology is motivated by the desire to "please" entities with power over the pleaser. Its effects can be seen, therefore, in the market distortions within market economies resulting, for example, from behavior of sellers who face only a single buyer (Buchanan, 1979, pp. 167-170). It is the distorting effect of such power upon decisions that Tullock employs in his analysis of the inefficiencies of hierarchy and bureaucracy, taking "an economist's approach to the political relationship among people" (Buchanan, 1979, p. 167; Tullock, 1965). In the "economy" of the Soviet Union, the distorting influences of power are inherent and pervasive; they cannot be avoided. Authority, power, hierarchy, and bureaucracy characterize the institutional forms within which "economic" decisions are made. Those forms exist to compel. The principle of "spontaneous coordination" does not characterize the Soviet legal economy.

[In the Soviet Union] command replaces initiative and entrepreneurship, discipline replaces motivation, and a rigid bureaucratic organization replaces the more flexible market. . . . Every shortcoming usually attributed to a bureaucratic organization is found here—and in the Soviet Union the bureaucracy encompasses the entire production sector (Ofer, 1987, p. 1801).

It is not surprising, therefore, that the mainstream approaches of modern economics have been unable to satisfactorily unravel the "riddle wrapped in a mystery inside an enigma" (Churchill, 1939) that is the Soviet Union. The growing fields of the new institutional economics, however, hold substantial potential for leading us further into, and perhaps out of, the maze presented by the centrally administered "economic" system. These fields have not been widely applied to the area of comparative systems generally, or to the Soviet Union in particular. In some cases, their successful application must await further theoretic formalization (Putterman, 1987, p. 282). But in every case they suggest rich lines of investigation that should enhance the "institutionless" character of the models of the Soviet economy upon which we now rely.

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